

# EXHIBIT H

1 UNITED STATES DISTRICT COURT  
2 CENTRAL DISTRICT OF CALIFORNIA  
3 EASTERN DIVISION-RIVERSIDE

4 HONORABLE VIRGINIA A. PHILLIPS, JUDGE PRESIDING

5 G. DAVID JANG, M.D., )

6 Plaintiff, )

7 V. )

DOCKET NO. EDCV 05-426 VAP

8 BOSTON SCIENTIFIC CORPORATION, )  
9 et al., )

10 Defendants. )  
11

12 REPORTER'S TRANSCRIPT OF ORAL PROCEEDINGS  
13 Riverside, California  
14 Tuesday, May 30, 2006

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19 3470 Twelfth Street  
20 Riverside, California 92501  
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1 TUESDAY, MAY 30, 2006, RIVERSIDE, CALIFORNIA

2 ---00o---

3 THE CLERK: Calling Item No. 2, EDCV 05-426 VAP,  
4 G. David Jang versus Boston Scientific Corporation, et al.  
5 Counsel, please make your appearances.

6 MR. BARSKY: Good morning, Your Honor. Wayne  
7 Barsky of Gibson, Dunn & Crutcher and with me this morning is  
8 Julian Poon, Brenda Kleidosty, K-L-E-I-D-O-S-T-Y, and June  
9 Tai, T-A-I.

10 THE COURT: Good morning.

11 MR. MUNDELL: Good morning, Your Honor. Thomas  
12 Mundell from Mundell, Odum & Haws also on behalf of  
13 Dr. Jang.

14 THE COURT: Good morning.

15 MR. WOLF: Good morning, Your Honor. Matthew Wolf  
16 from Howrey LLP on behalf of the Boston Scientific  
17 defendants. With me are my partner, Ed Han, my associate  
18 John Nilsson and Dr. Wallace Woo.

19 THE COURT: Good morning.

20 We're here this morning for the hearing on the  
21 claim construction, although in a sense this is not, strictly  
22 speaking, as the parties have pointed out, a patent  
23 infringement matter, it's still necessary to have the Markman  
24 hearing in order to resolve the claim construction issues for  
25 the purpose of proceeding with the claims in this case.

1 I have reviewed the opening and response briefs  
2 filed by both sides. What I have not reviewed is the  
3 declaration of Professor Squire that was submitted. I have  
4 reviewed the objection -- the evidentiary objections to it  
5 that were submitted. I would probably think we should  
6 resolve that matter first. I'm not inclined to actually  
7 review the declaration because I do think it's the sort of  
8 extrinsic evidence that is probably unnecessary for the Court  
9 to review in order to resolve the issues that are presented.  
10 So I am inclined to sustain the objections, but before I do  
11 so, would you like to be heard?

12 MR. HAN: Yes, Your Honor. Ed Han, if I may be  
13 heard.

14 Your Honor, we actually do agree that if the Court  
15 is able to resolve these issues based on the intrinsic  
16 evidence, and we believe that Boston Scientific's proposed  
17 constructions are supported by the specifications of the  
18 patents, then it may not be necessary.

19 We believe that Dr. Jang has potentially inserted  
20 some ambiguities by their positions. And to the extent that  
21 the judge -- and that Your Honor does find there is some  
22 ambiguity, we believe at that point it would be proper to  
23 consider extrinsic evidence and we offer Dr. Squire's  
24 declaration in that context.

25 If I may, of course, we received the objections

1 only late last week and have not had a chance to submit  
2 papers and would welcome the opportunity, if Your Honor would  
3 find that helpful, to briefly and quickly respond in writing,  
4 but I'm prepared --

5 THE COURT: I don't think it's necessary.

6 MR. HAN: -- either in lieu of that or in addition  
7 to that to speak to the issues raised by the objections now.

8 THE COURT: Go ahead.

9 MR. HAN: Dr. Squire's declaration does four  
10 things. The first is that it does provide several paragraphs  
11 of background about the technology. We don't believe  
12 Dr. Jang's counsel have taken issue with that.

13 Secondly, it establishes Dr. Squire's  
14 qualifications as one skilled in the art. And again, we  
15 don't believe, as I read the objections, that they are taking  
16 issue with that either.

17 The other thing that Dr. Squire does is for certain  
18 terms he does opine as to how a person skilled in the art  
19 would understand those claims.

20 And finally, having stated those understanding, he  
21 goes on to review the patents themselves to determine that  
22 there is nothing in the patents that contradicts that  
23 understanding that he's put forward.

24 We believe that all of those purposes are proper,  
25 and actually we don't believe that the objections that

1 Dr. Jang has raised actually dispute that. And, in fact,  
2 they themselves quote a passage of the Phillips case in which  
3 the Court finds that we have also held that extrinsic  
4 evidence in the form of expert testimony can be useful to the  
5 Court for a variety of purposes and list several things, the  
6 last of which --

7 THE COURT: But the case lists several conditions  
8 that must exist before the Court --

9 MR. HAN: That's true, Your Honor.

10 THE COURT: -- would find helpful extrinsic  
11 evidence.

12 MR. HAN: Yes, Your Honor. And so I've stated at  
13 least one of those, and so we do agree that if Your Honor is  
14 able to resolve this without reference but, again, there are  
15 situations when it may be helpful. So the question becomes  
16 -- if the Court's analysis leads you to the point where you  
17 may seek recourse to the extrinsic evidence, then the  
18 question becomes, is Dr. Squire's declaration in proper form  
19 for you to do so.

20 We believe that the objections proceed from three  
21 faulty premises. First of all, you know, all of them relate  
22 basically to the idea that the declaration is too conclusory.

23 First of all, we believe that the objections  
24 themselves have omitted to reference certain paragraphs of  
25 the declaration which do actually explain the reasoning and

1 the reasons why someone skilled in the art, in particular, an  
2 issue that you are going to hear about as the hearing  
3 proceeds, a crucial issue of the distinction to practitioners  
4 of the art between the connecting elements and the expansion  
5 elements of the stents. And I would refer the Court  
6 particularly to paragraphs 22, 23 and 24 of Dr. Squire's  
7 declaration, which are not specifically pulled out from in  
8 the objections.

9 And we would submit, Your Honor, that if one  
10 focuses entirely on the declarant's conclusions that it is  
11 inevitable that it would seem conclusory, and we think that  
12 in certain instances there are explanations and reasoning  
13 that would support the conclusions that they have simply  
14 ignored.

15 Second, the objections basically require Dr. Jang  
16 in several instances to prove a negative which is very  
17 difficult. The point as I described was that having given  
18 his opinion of how someone skilled in the art would view a  
19 particular claim term that the next step in the analysis,  
20 properly, we believe, is that Dr. Squire would then review  
21 the specification to see that there's nothing in there that  
22 contradicts that view, that shows that the inventor had  
23 intended some other purpose with that otherwise commonly  
24 understood term.

25 And what he says in several of those cases -- and I



1 would highlight paragraph 16, 25 and 27 -- is that I reviewed  
2 the patent and I find no suggestion of some contradictory  
3 understanding of the terms. And so the effect of that is  
4 there really is nothing more to be said in that analysis. It  
5 is in the nature of either he goes through every line of the  
6 patents and shows that they do not suggest a contrary  
7 understanding, or he can simply over all make the overall  
8 statement that there's nothing there.

9           So when the objections say -- that criticize him  
10 for failing to identify any specific passages or languages in  
11 the Jang patents to support his conclusions, well, what he's  
12 really saying is there are no such passages or languages that  
13 I can cite that would contradict those conclusions. So it  
14 really is -- that's the nature of the analysis.

15           Counsel cites the Southwall case which seems to be  
16 the case on which they principally rely. And the point I  
17 just made is kind of the critical distinction that we would  
18 ask the Court to find between these facts, Dr. Squire's  
19 declaration and the declarations at issue in Southwall.

20           In particular, what the federal circuit finds in  
21 Southwall, neither of the experts testified as to how one  
22 skilled in the art would interpret the term in question when  
23 viewed in light of the claim specification and prosecution  
24 history. The Court goes on to find that, in fact, those  
25 experts were trying to alter a meaning that was clear from

1 the specification. And as I've tried to make clear, Your  
2 Honor, a fair reading of Dr. Squire's declaration we believe  
3 would be consistent with a reading of these claim terms that  
4 is not contradicted by --

5 THE COURT: Then why is it needed?

6 MR. HAN: Your Honor, it's needed if the positions  
7 that Dr. Jang has put forward create an ambiguity. I would  
8 say in the first instance our position is -- and you see this  
9 kind of situation in contract disputes, too, where one party  
10 argues that a document is unambiguous, but if the Court finds  
11 an ambiguity, please refer to this extrinsic evidence. And I  
12 think we offer Dr. Squire's declaration in that spirit.

13 THE COURT: All right.

14 MR. HAN: The last point, and I'll be quick about  
15 this, is we believe that the Daubert references -- citations  
16 are inapposite, again, because of the nature of Dr. Squire's  
17 analysis, basically what he knows and understands as a  
18 practitioner in the art.

19 Rule 702 as amended in response to Daubert and its  
20 progeny reflects a great deal of flexibility as to the  
21 factors and tests, the idea that Daubert suggests, you know,  
22 that the methodology be tested in a certain way, that peer  
23 review is a relevant factor and so on. Rule 702, the  
24 advisory committee notes to Rule 702 says that not all of the  
25 specific Daubert factors can apply to every type of expert

1 testimony. And we would suggest in this case, Your Honor,  
2 given the nature of it, it's really not the type of thing  
3 that a lot of the Daubert factors, the Kumho factors would  
4 really apply to.

5 So that actually is our response. Again, if  
6 there's a question, we would be happy to brief it within days  
7 if that's helpful.

8 THE COURT: It won't be necessary but thank you.

9 Mr. Barsky, do you wish to respond?

10 MR. BARSKY: Your Honor, may I ask Mr. Poon to  
11 address this issue?

12 THE COURT: Mr. Poon.

13 MR. POON: Thank you, Your Honor. I'll be brief.  
14 Not only is the Squire declaration not necessary, but under  
15 the Phillips case and the Supreme Court precedence, such as  
16 Daubert, it is unhelpful and it should be excluded because it  
17 consists of conclusory unsupported assertions as to claim  
18 terms that have no backup to it, that have no explanation of  
19 how Dr. Squire reasons from an observation to a conclusion.  
20 We can walk through just two or three examples, perhaps given  
21 the examples that Mr. Han gave. First he gives the example  
22 of paragraphs 22, 23 and 24 of the declaration as not being  
23 too conclusory.

24 Let's take a look at paragraph 22. Dr. Squire  
25 states that the fact that connecting --

1 THE COURT: Excuse me one moment.

2 MR. POON: Certainly, Your Honor.

3 MR. WOLF: Your Honor, if I may approach?

4 THE COURT: All right. Go ahead.

5 MR. POON: Your Honor, I have a copy if you would  
6 like.

7 Your Honor, in these three paragraphs Dr. Squire  
8 basically tells us that the connection struts not being  
9 attached to each other is necessary to impart additional  
10 longitudinal flexibility to the unexpanded stent. And then  
11 he goes on to say that's desirable, but he never explains how  
12 it is that the unattached nature of the connecting struts in  
13 the connecting column imparts additional longitudinal  
14 flexibility to the unexpanded stent.

15 To take some other examples that Mr. Han referred  
16 to, paragraphs 16, 20, 26 and 27 of the declaration which  
17 I'll paraphrase for Your Honor, basically here Dr. Squire is  
18 telling us that an expansion column can only consist solely  
19 of expansion struts and a connecting strut column can only  
20 consist solely of connecting struts, yet never tells us how  
21 he arrives at that conclusion. There are no paragraphs that  
22 Mr. Han or any of his colleagues can cite where he provides  
23 any backup for it. He simply declares: I'm a person of  
24 skill in the art, I have the following degrees, I graduated  
25 from the following universities, I've done some research in

1 this area, and then he declares it as such.

2 And the kind of classic ipse dixit that the Supreme  
3 Court condemns as inconsistent with Daubert and  
4 General Electric v. Joiner. All he has is a declaration of  
5 that effect and then he makes a blanket reference to having  
6 looked at all of, quote, the Jang patents and their  
7 prosecution histories, end quote. That is the pattern that  
8 he follows consistently when, as Mr. Han refers to, he says,  
9 well, Dr. Squire is being asked to prove a negative. And in  
10 each of those paragraphs all he's saying is, well, I've  
11 looked at the Jang patents and their prosecution histories  
12 and I can't find anything to cause me to disagree with the  
13 litigation position that the BSC is taking in its brief.

14 It really adds no value to this case and is really  
15 quite consistent with what the federal circuit condemned not  
16 only in Phillips but also in Southwall when it enjoined  
17 courts to ensure that experts tendering extrinsic evidence  
18 make some demonstration that the conclusions that they offer  
19 to the Court have some grounding in the claims, the  
20 specification, or the prosecution history of the patents in  
21 question. Simply saying I've looked at the patents and  
22 prosecution history, with all due respect, Your Honor, I  
23 don't think that cuts it. That doesn't satisfy the standard  
24 set forth by the federal circuit or the Supreme Court.

25 Let's take another example, paragraph 17 of the

1 Squire declaration, where Dr. Squire tells this Court that  
2 the expansion column needs to be tubular. Well, he never  
3 explains what exactly he means by tubular, let alone offering  
4 an explanation of why it is that the expansion columns, which  
5 ring around the stents circumferentially, he agrees, needs to  
6 be tubular. There's no explanation, Your Honor, of how this  
7 so-called tubular structure is necessary to ensure that the  
8 expansion column performs its, quote, basic function. He  
9 simply declares it from the heavens as such, offers his  
10 degrees up as proof of that, and says you need know no  
11 further, Your Honor, than that. I have these impressive  
12 degrees and I'm a person of ordinary skill in the art and  
13 just take my word for it.

14 Paragraph 30 is yet another example. This is  
15 actually quite an ironic example where it's a two sentence  
16 paragraph. It is the only support in the declaration for the  
17 proposition that a certain compound term needs to be  
18 construed in a certain way. In this case -- it's a mouthful,  
19 Your Honor, but basically he recites -- he quotes the claim  
20 term from claim 1 of the '743 and '021 patent which states,  
21 quote, the first expansion strut of the first expansion strut  
22 pair and the first expansion column have a longitudinal axis  
23 offset from the longitudinal axis of the first expansion  
24 strut of the second expansion strut pair and the second  
25 expansion column, end quote. And then, voila, he just, in my

1 opinion, declares what this limitation is supposed to mean  
2 with no reference and no explanation to the claims or the  
3 specification or the prosecution history. This is a textbook  
4 illustration of what is meant by conclusory.

5 Perhaps the last example is paragraphs 15 and 21 of  
6 the Squire declaration in which Dr. Squire makes reference to  
7 prior art stents, yet he never tells us which prior art  
8 stents he's referring to or where to look in these prior art  
9 stents. All he offers is a one-page exhibit full of what  
10 looks like over a dozen patents, and it's anyone's guess  
11 which of these prior art stents he's referring to and where  
12 in the prior art stents we should look to to try and find  
13 some support for the conclusions that he pronounces and  
14 declares in paragraphs 15 and 21 of the declaration.

15 In sum, Your Honor, I think particularly because  
16 BSC has not tendered Dr. Squire for cross-examination  
17 purposes today, it's particularly incumbent on this Court in  
18 keeping with the teachings of the federal circuit in Phillips  
19 and in Southwall and in Storage Technologies, not to mention  
20 the Supreme Court's decisions in Daubert, in  
21 General Electric v. Joiner and in Kumho Tire to exclude this  
22 evidence as inadmissible as conclusory unsupported assertions  
23 by experts as to the definition of a claim term which are  
24 not useful to this Court.

25 THE COURT: Thank you. I'm going to make a few

1 observations, but I think that your last point is maybe the  
2 most critical; and that is, that unless the witness is here  
3 to testify and is subject to cross-examination, that may be  
4 the tipping point in whether I accept his declaration.

5 Just to step back and think about this declaration  
6 the way I would think about any declaration that I review in  
7 say a motion for summary judgment or any other matter that is  
8 before the Court, the ideal declaration that's a part of  
9 papers that are being reviewed by the Court has factual  
10 matters. And, in fact, one of the things I dislike is  
11 reading a motion accompanied by declarations that is  
12 repetitive; that is, I read the motion and then I read the  
13 declaration and they are sentence by sentence repetitive.  
14 And it is not just that I find it tedious to read the same  
15 sentences in both, but a declaration should not have the same  
16 sentence because a declaration should contain facts.

17 Now, the declaration from an expert witness can  
18 contain opinions, and that's fine, but the points and  
19 authorities should contain legal argument. So when I'm  
20 reading the same kinds of sentences in a declaration as I'm  
21 reading in a set of points and authorities, I find that  
22 troubling, not as I just said because it's tedious -- and by  
23 the way, both sides papers here were far from tedious. Goes  
24 without saying. Maybe it doesn't go without saying but they  
25 are just very, very well written and you did a splendid job



1 of educating -- you did your best to educate me. And I  
2 really appreciate the effort that went into them. They were  
3 everything that they should be.

4 So none of this is directed at you. But my point  
5 is that what's set forth in a declaration is supposed to be  
6 facts and, in the case of an expert, some legal opinions.  
7 And when it's repetitive word for word sometimes of what's in  
8 the legal argument, A, the lawyers perhaps have not done a  
9 very good job, but it also makes me suspicious that what's  
10 going on is not so much a set of facts from which the lawyers  
11 have made some independent arguments, but that it's very hard  
12 to sort out what are the facts and what are the arguments.

13 And to a certain extent that's what troubles me  
14 about this declaration; that is, I think that the declaration  
15 is, for the most part, unnecessary, because I think the  
16 arguments -- and just to pick out a couple of them, the one  
17 that you just argued or you just pointed out, Mr. Poon --  
18 that is, that expansion struts are in expansion columns and  
19 so forth -- those are arguments that are well developed in  
20 the briefs submitted by Boston Scientific.

21 And they're, in my view, I'm not trying to -- I  
22 haven't reached a decision. I know that's why we're here for  
23 today. I want to hear the argument and so forth that the  
24 parties are here to present, but those arguments are based on  
25 all of the things that the authorities, the federal circuit

1 authorities and the Supreme Court authorities and all of the  
2 case law in this area said that they can be based on, the  
3 patent prosecution, the patents themselves, et cetera. So  
4 you don't need an expert to opine on those.

5 And so what we have is, we have an expert's  
6 declaration saying the same things but those are things that  
7 in the legal argument that they're all contained within the  
8 points and authorities and the legal arguments, and as best I  
9 can tell at this point, there is a basis for them, a  
10 permissible basis for them, or I should say bases for them,  
11 for all of those arguments. So I think they are unnecessary.  
12 I think the declaration is probably unnecessary and I find it  
13 troubling, as I said, because I think it's duplicative of --  
14 and not just duplicative, but it steps over the line I think  
15 of argument.

16 And maybe I haven't explained it or articulated it  
17 very well, but at this point I am inclined to sustain the  
18 objection, but I'm going to take it under submission. I  
19 don't think I need any further briefing on it, but if I  
20 change my mind on that, I'll certainly give you an  
21 opportunity.

22 MR. POON: Thank you, Your Honor.

23 MR. HAN: Thank you, Your Honor.

24 THE COURT: Let me start with plaintiff's counsel.  
25 What's your estimate for your presentation?

1 MR. BARSKY: Thank you, Your Honor. We have an  
2 initial presentation, Your Honor, that I think we can get  
3 through in less than an hour. I'm assuming it's going to be  
4 right around 45 to 50 minutes, and I'd like to just reserve a  
5 little bit of time at the end to address any issues that come  
6 up during Boston Scientific's presentation. And I was going  
7 to inquire actually about the Court's schedule in terms of  
8 recesses and so on and whether the Court would want me to  
9 go --

10 THE COURT: Completely flexible, whatever the  
11 parties -- within reason. We can certainly go -- we're not  
12 tied to having a lunch hour at noon, but I will give you  
13 within reason as much time as you need. As I said, I've read  
14 the papers and some of the case law that you've cited I am  
15 familiar with. Some of it I had to read for the first time.  
16 Some of it I re-reviewed. And I have some questions I've  
17 written in the margins occasionally on your papers, so as you  
18 go along I may ask some questions, but you may preempt my  
19 questions as you explain.

20 What's the defense's estimate of time?

21 MR. WOLF: Your Honor, we have a prepared roughly  
22 45-minute presentation, but obviously, I'm going to do my  
23 best to be responsive to Mr. Barsky, so if I can tone that  
24 down, we'll skip through slides as appropriate.

25 THE COURT: I have a whole day set aside for you.

1 That doesn't mean you need to use it all, but I just want to  
2 assure you I know how important this matter is to both sides,  
3 so that's fine. So we will go through lunch and then if  
4 necessary we'll take a lunch break. If there's more to  
5 cover, then we'll resume after lunch.

6 MR. WOLF: Very good, Your Honor.

7 THE COURT: Mr. Barsky, you may resume.

8 MR. BARSKY: Thank you very much, Your Honor.

9 First, Your Honor, I would like to just note for  
10 the record the presence of the plaintiff, Dr. Jang, who is in  
11 the courtroom today. And I do want to say, and I speak not  
12 only on behalf of our team but I'm sure for Boston  
13 Scientific's as well, that we understand the amount of work  
14 that the Court and its staff has to put in to a matter like  
15 this and we appreciate very much the time and the attention  
16 that the Court has given us in this case and we appreciate  
17 that.

18 What I'd like to do, if I could give just a brief  
19 overview of where we're going to be going this morning or  
20 where I'm going to be going this morning in the plaintiff's  
21 presentation. I just have some preliminary comments that I  
22 want to start with. It should take about five or  
23 six minutes. I'm then going to speak briefly about the  
24 preferred embodiment of Dr. Jang's inventions, the  
25 specification or written description portion of the patents.

1 That should be about another five or six minutes. And then I  
2 would like to devote the balance of my time to discussing  
3 what I believe we all agree are the three principal claim  
4 elements that are at issue in this proceeding. Five issues,  
5 as I count them, but only three specific issues.

6 And one of the things I wanted to point out, Your  
7 Honor, is that I'm here obviously to address the Court's  
8 questions, the Court's issues, and so although I have a  
9 packaged or structured presentation, I'm prepared to depart  
10 from that at any time in whatever is going to be the most  
11 helpful way of proceeding for the Court.

12 THE COURT: I appreciate that.

13 MR. BARSKY: One of the things I would point out,  
14 Your Honor, is that although I'm going to be focusing on what  
15 we believe to be the five principal claim construction issues  
16 in the course of this proceeding, there are a number of other  
17 claim terms that we have proposed to be construed, some of  
18 which Boston Scientific has not proposed any constructions  
19 for, others for which Boston Scientific has proposed  
20 competing constructions, but as to which there is perhaps a  
21 difference in the words we might choose to describe those  
22 constructions but nothing truly fundamental as is true of the  
23 five principal issues.

24 THE COURT: Now, you're talking about in the chart  
25 that you provided the terms that are in the Roman numeral

1 Section III?

2 MR. BARSKY: That's exactly right, Your Honor.  
3 Attached as Appendix A for the Court's convenience to our  
4 supplemental claim construction brief is the joint statement.  
5 I think it may be a very helpful document.

6 THE COURT: It was incredibly helpful. I  
7 appreciate it very much. Of those terms the only one that  
8 or the only two that I thought were perhaps important were  
9 the terms "proximal" and "distal."

10 MR. BARSKY: Yes.

11 THE COURT: And although I at first was inclined to  
12 think that your proposed construction was the appropriate  
13 one --

14 MR. BARSKY: Yes.

15 THE COURT: -- I eventually was persuaded that the  
16 defense's was more appropriate because, as they point out,  
17 their proposed construction is that the terms "proximal" and  
18 "distal" relate to the operator. And the reason I think that  
19 their proposed construction is the appropriate one is, as  
20 they point out in their brief, we're talking about a  
21 three-dimension -- I'm sorry, a two-dimensional stent. And  
22 so if the Court were to adopt your construction, and it's not  
23 in relation to the operator, then if the stent is flipped,  
24 then the terms "proximal" and "distal" lose their meaning.

25 MR. BARSKY: Yes. And I understood that argument

1 by Boston Scientific. And, once again, this is a great  
2 example of something where we don't have a fundamental  
3 disagreement but it is just a question of the choice of  
4 words. And when we get to that section -- when I get to that  
5 section of the presentation, one of the things I'll point  
6 out, Your Honor, is that it can be flipped whether or not  
7 it's left and right as we propose or whether it is closer to  
8 the operator or further from the operator as Boston  
9 Scientific proposes.

10 And the reason for that is that the stents are  
11 symmetrical. And so whether one mounts the stent on the  
12 balloon, the delivery balloon, with say end A, let's just  
13 call it end A, closer to the operator, or end B, that's  
14 going to determine, according to Boston Scientific, what will  
15 be proximal or distal, much in the same way as whether it's  
16 left and right using our proposals.

17 And I have a couple of slides that maybe I can use  
18 to illustrate that, but it's helpful to hear the Court's  
19 comments on that.

20 THE COURT: But of all of those terms I think that  
21 may be the only two that I thought were --

22 MR. BARSKY: Very well, Your Honor.

23 THE COURT: I'm sorry.

24 MR. BARSKY: If during the course of today's  
25 presentations there are any other terms that the Court would

1 like us to focus on, we will, of course, do that. And  
2 perhaps towards the end I'll make some additional comments  
3 about these particular claim terms in Section 3.

4 THE COURT: All right.

5 MR. BARSKY: Thank you very much.

6 So then, Your Honor, I'll start with just some very  
7 brief preliminary remarks.

8 We're here today, Your Honor, obviously, because  
9 the Court is going to be considering what the proper  
10 interpretation is of the claims in Dr. Jang's patents that  
11 are at issue in this proceeding. One of the things the  
12 federal circuit has been quite clear about, Your Honor, is  
13 that that process begins and ends with the language of the  
14 claims themselves. The reason for that, Your Honor, is  
15 because, as a matter of law, it is the claims that define the  
16 scope of the invention.

17 Now, one of the things that we tried very hard to  
18 do in proposing constructions on behalf of Dr. Jang is to  
19 make sure that the constructions that we were proposing were  
20 driven by and consistent with the claim language, read, of  
21 course, in light of the specification which the Court is  
22 instructed by the federal circuit to do, but nonetheless,  
23 consistent with the language of the claims. And that's  
24 particularly important here, Your Honor, because there are a  
25 number of claim terms at issue in this proceeding -- just by



1 way of example, expansion column and connecting strut  
2 column -- that are actually defined in the claim language.  
3 So we have proposed claims that we believe arise directly out  
4 of and are driven by the language of the claims themselves.

5 Boston Scientific we believe has taken a very  
6 different approach. They have avoided the language of the  
7 claims. They discussed it very infrequently in either of the  
8 briefs that they submitted to this Court, and I will predict  
9 that they will discuss the actual claim language just as  
10 infrequently today during the course of this proceeding,  
11 because what they are focusing on is the language of the  
12 specification of the patent. And what that has led to, Your  
13 Honor, is Boston Scientific tendering claim constructions  
14 that seek to limit the scope of the claims by the specific  
15 embodiments or examples that Dr. Jang presents in his  
16 patents.

17 That's something that the federal circuit again has  
18 been quite clear about. And it is not proper because among  
19 the many things that the federal circuit has said -- and I'll  
20 be the first to admit that when it comes to articulating  
21 principles of claim construction, the federal circuit has not  
22 always been that clear or uniform, but on this subject they  
23 are a model of clarity, Your Honor. The federal circuit has  
24 clearly said that the specification, the examples in the  
25 specification, do not limit the claims.

1           Now, the other thing that Boston Scientific has  
2       said, Your Honor, and has pointed the Court to is that they  
3       claim that under Dr. Jang's proposed claim constructions the  
4       differences between, for example, a connecting strut and an  
5       expansion strut are confused, that the proposed constructions  
6       fail to distinguish between those different structures. We  
7       don't think that's the case, and when we talk about the  
8       definitions that we're proposing we will, in fact, make it  
9       clear that we're articulating very different definitions of  
10      what an expansion strut is, what a connecting strut is and  
11      their respective columns.

12           The other thing that Boston Scientific has argued  
13      about is the prior art. Again, it's not about the claim  
14      language, it's about the specification, and in this case it  
15      is also about the prior art. Boston Scientific has argued at  
16      length that if the Court were to adopt Dr. Jang's proposed  
17      claim constructions, that would result in the claims reading  
18      on or covering the prior art, rendering those claims invalid  
19      and, Boston Scientific says, the Court can't construe the  
20      claims that way.

21           Well, let's put aside the fact that that's not the  
22      standard actually that the Court must apply when construing  
23      the claims and focus instead on the assertion itself; namely,  
24      that under Dr. Jang's constructions they would cover the  
25      prior art. Boston Scientific points to, for example, the

1 Fischell, Orth, Pinchasik and Palmaz prior art. And they  
2 provided some drawings to the Court in which they illustrate  
3 with a lot of blue color how they believe that --

4 Yes, Your Honor.

5 THE COURT: What about the Lau?

6 MR. BARSKY: And they propose Lau and I was going  
7 to get to that in a minute. The point I was going to make,  
8 Your Honor, about those four prior art patents is that Boston  
9 Scientific is going to have a very hard time advancing that  
10 argument for at least a couple of reasons. Your Honor, each  
11 of those four patents that I just mentioned -- not Lau, but  
12 each of the four patents that I just mentioned were before  
13 the patent office at the time that the examiner examined  
14 Dr. Jang's patent applications and were before the patent  
15 office when the patent office made a decision to allow those  
16 claims as they are written and as they now appear in the '021  
17 and '743 patents.

18 Part of the presumption of validity of an issued  
19 patent, Your Honor, is a presumption that the examiner did  
20 his or her job correctly and that the examiner knew what he  
21 or she was doing at the time. And here, one of the things  
22 that's clear is that the examiner knew, for example, when he  
23 permitted these claims to issue without imposing a  
24 requirement that the connecting struts be unattached to each  
25 other or that the connecting strut columns not have any

1 elements other than connecting struts or that the expansion  
2 columns need not be adjacent to each other, at least the ones  
3 that are connected by a connecting strut.

4           The patent examiner at the time that he allowed  
5 these claims as written and then the patent office permitted  
6 this patent to issue was aware of all this prior art. So  
7 it's a very difficult argument for Boston Scientific to make  
8 because what they're asking this Court to do is, in effect,  
9 what they're challenging is not so much the proposed  
10 constructions that Dr. Jang is offering, what they are really  
11 doing is saying that these claims as they are written now  
12 should never have issued. If the patent examiner was doing  
13 his job, the patent examiner would have looked at these  
14 claims and seen that there was no requirement, for example,  
15 that the connecting struts be unattached and would have  
16 required Dr. Jang before allowing this patent to issue to  
17 specify that the connecting struts were unattached.

18           And so we think for that reason, Your Honor, that  
19 what is really -- the position that Boston Scientific is  
20 truly taking here is one where they are seeking to ask this  
21 Court to redraft Dr. Jang's claims so that they read the way  
22 that Boston Scientific thinks they should have read when they  
23 first issued from the patent office. And we'll have a lot  
24 more to say about that later.

25           As to Lau, the Court is correct that they also

1 argue that the patent claims as construed by Dr. Jang would  
2 read on the Lau patent, and they lump Lau in with Pinchasik,  
3 Orth, Fischell and treat it the same way and say, look, if  
4 you're going to read the patent claims this way, then it  
5 reads on Lau, Pinchasik, Orth and Fischell. There's no  
6 distinction that Boston Scientific has pointed out between  
7 Lau and any of those other items of prior art that the patent  
8 office knew about.

9 Boston Scientific is not in here today telling this  
10 Court and they never have told this Court that Lau presents  
11 something new and different. On the contrary, they have said  
12 that these claims would read on Lau just like they would read  
13 on these other prior art patents of which the patent office  
14 was aware.

15 So that is the reason, Your Honor, why we believe  
16 that they are, in effect, making a very difficult argument  
17 here. Validity must be proved obviously by clear and  
18 convincing evidence, and we realize this isn't a motion for  
19 summary judgment of invalidity, but nonetheless, if they are  
20 asking this Court to alter the way it would normally  
21 interpret these claims because of the prior art, then they  
22 must prove that the claims as construed by the plaintiff and  
23 as, frankly, issued by the patent office would read on that  
24 prior art.

25 That concludes the overview I wanted to provide,

1 Your Honor, and unless the Court has any questions I will  
2 move on now to talking briefly about the preferred  
3 embodiments.

4 THE COURT: Go ahead.

5 MR. BARSKY: Let me start, Your Honor, by pointing  
6 something out. There are two -- there are obviously two  
7 patents that are at issue in this proceeding. The '021 and  
8 the '743 patent. The specifications of these two patents  
9 largely overlap. It's not complete but they largely  
10 overlap. The claims are obviously all different, but the  
11 specifications largely overlap. And because of that and in  
12 order to expedite this proceeding and to make the  
13 consideration of these issues a little less cumbersome, we're  
14 going to proceed by focusing on the '021 patent and talk  
15 about a lot of these issues in the context of the '021  
16 patent. But if at any point there are any -- and that's  
17 because I don't think there are any unique issues with  
18 respect to the '743 patent. So I'm going to use that as a  
19 shorthand for talking about the preferred embodiment and, in  
20 fact, for talking about the patent claims.

21 But the other thing I would point out is that  
22 although the claims of the two patents are distinct, the  
23 claim terms that are at issue in the two patents overlap  
24 completely. In other words, they're not used the same way  
25 but they appear in claim one of both the '021 and the '743

1 patent. And we and Boston Scientific have agreed, and I  
2 believe we have so advised the Court, that if a claim term,  
3 for example, "expansion column" appears in claim one of the  
4 '021 patent, it should be given the same construction as  
5 whatever the Court adopts for the '743 patent. They're not  
6 being used differently in the two patents.

7 So then I will start then by just talking a little  
8 bit about Dr. Jang's invention. This is a three-dimensional  
9 rendering, Your Honor. It happens to be figure 8E from the  
10 '021 patent. It's a three-dimensional rendering of a stent  
11 that is built in accordance with Dr. Jang's invention. It is  
12 an embodiment. And I want to bring the Court's attention to  
13 one specific repeating element that appears. And I don't  
14 know if the Court is able to see the highlighting, but --

15 THE COURT: Yes.

16 MR. BARSKY: -- that what I've highlighted is a  
17 connecting strut connecting to expansion strut pairs. There  
18 is a closer look at it, Your Honor. And this is, in effect,  
19 a building block of this particular embodiment of Dr. Jang's  
20 stent, because it is this repeating element that forms the  
21 stent and drives its functional characteristics.

22 And there's one other thing and we're going to take  
23 a closer look at that with a two-dimensional figure in just a  
24 moment, Your Honor. But one other thing I would point out on  
25 this diagram to the Court is the longitudinal axis of the

1 stent. That is the element that is numbered 16. And  
2 immediately above that line, Your Honor, there are two  
3 numbers. At the far left end of the longitudinal axis  
4 there's the No. 12, and on the far right end it is hidden  
5 under the superimposed magnified picture is 14 but it is just  
6 peeking out under the shadows of that. There's a better view  
7 of that right here, Your Honor.

8 The specification -- and this goes to the Court's  
9 question earlier about proximal and distal. But the  
10 specification is quite clear about what this is. It  
11 specifically says that this particular stent has a proximal  
12 end 12 and a distal end 14 and that those two ends define  
13 the longitudinal length of the stent. The longitudinal axis  
14 would be a line that runs through the barrel of the stent.

15 THE COURT: A line that's the length of 16?

16 MR. BARSKY: A line that would be parallel to and  
17 the length of 16 -- actually, because it's a line I suppose  
18 it would be infinite, but it would be an imaginary line  
19 running through the center of the stent. I'll correct  
20 myself. Element 16 is what the patent calls a longitudinal  
21 length, not a longitudinal axis, but I think we understand  
22 that the axis would be parallel to that running through the  
23 center of the stent.

24 And this is important because it is here, among  
25 other places, that Dr. Jang distinguishes between proximal



1 and distal. In this particular two-dimensional drawing of a  
2 three-dimensional object, it's obvious that proximal is to  
3 the left and distal is to the right. And that is important,  
4 Your Honor, because one of the things that is clear  
5 throughout this patent is that those markers, those proximal  
6 and distal markers or sign posts, if you will, are used in  
7 describing a number of different elements. For example, they  
8 are used in describing the connecting struts which have  
9 proximal sections and distal sections, and they are used in  
10 describing the expansion strut pairs which similarly have  
11 proximal ends and distal ends. And we'll look at that now.

12 Here is a two-dimensional rendering. It is figure  
13 8G of a slightly different building block, if you will, of  
14 Dr. Jang's preferred embodiment. And there are at least  
15 three separate sections of this that I would point out to the  
16 Court.

17 The first are the expansion struts. These are the  
18 elements that are labeled 28. And as the Court can see,  
19 there are four of them. The thing I would point out about  
20 this particular configuration, Your Honor, is that the  
21 expansion struts have a closed end. That's the end in which  
22 the Court can see the joining struts. The joining struts  
23 couple adjacent expansion struts to each other.

24 So there is a closed end formed by that joining  
25 strut and then there is an open end. And I've taken to

1 calling, for example, the expansion strut pair on the left,  
2 Your Honor, a left-handed expansion strut pair because it is  
3 open to the left. In the way I think at least it points to  
4 the left whereas the expansion pair to the right points to  
5 the right so I think of it as being right-handed, but  
6 whatever convention the Court finds to be most helpful it's  
7 clear that these expansion strut pairs have a closed end and  
8 an open end, again, the closed end being defined by these  
9 joining struts.

10 The third element I would point out in this, Your  
11 Honor, is the connecting strut. This particular connecting  
12 strut, and there are a number of different ones that are  
13 described in Dr. Jang's patent and the briefs cover this, so  
14 I won't repeat this now, but certainly if the Court has any  
15 questions about it I can go into it more deeply, but we  
16 pointed out in our opening brief, for example, that there are  
17 many different configurations of these connecting struts that  
18 are possible, just as there are many different geometries  
19 that someone building Dr. Jang's invention could employ with  
20 respect to the expansion strut pairs and the particular shape  
21 or cell that is formed when the stent is built.

22 But this particular connecting strut here has four  
23 different sections. The element 162 is the proximal section  
24 of the connecting strut. Why? It's the furthest to the  
25 left. And this, by the way, is all defined in the

1 specification itself, and I can point that out to the Court  
2 if need be, but these are actually mapped out in our opening  
3 claim construction brief. Element 168 is the distal section  
4 of the connecting strut. Again, it's the one furthest to the  
5 right. And then there are two intermediate connecting strut  
6 sections, 164 and 166. So this happens to be a four-part  
7 connecting strut.

8 This is, as I said earlier, really the building  
9 block of the preferred embodiment or a preferred embodiment  
10 of Dr. Jang's patent and contains within it really most of  
11 the issues that we're going to be talking about today.

12 Now, at the end of the specification, at the end of  
13 the written description, just before Dr. Jang sets out the  
14 numbered claims that define the scope of his invention  
15 there's a passage, and it's an important passage, Your Honor,  
16 for at least two reasons, for two principles that are  
17 articulated in this paragraph.

18 The first is articulated in the second sentence of  
19 that magnified section, and that is the notion that because  
20 Dr. Jang has laid out specific examples, he is not intending  
21 this to be exhausted or to in any way limit the scope of the  
22 claims that he is now going to lay out for the reader.

23 The second point is in the third sentence, and that  
24 is simply reciting the fact that people of skill in this art,  
25 however it's defined and we're prepared to live with, for

1 example, Dr. -- Professor Squire's definition. But, in any  
2 event, persons of ordinary skill in the art will understand  
3 that there are multiple ways of building a stent in  
4 accordance with the invention made by Dr. Jang.

5 Now, that's not just language that appears in the  
6 specification of Dr. Jang's patent. It happens also to  
7 accord completely with established federal circuit law, law  
8 that was articulated as recently as the federal circuit  
9 sitting en banc in the Phillips case. The notion that the  
10 specification does not limit the claims and the notion that  
11 people of ordinary skill in the art would rarely -- and that  
12 is, I believe, the exact word that the federal circuit used  
13 in Phillips. A person of ordinary skill in the art would  
14 rarely look at the preferred embodiment of a patent and  
15 believe that that was the only way of building the claimed  
16 invention.

17 Your Honor, that more or less concludes a brief  
18 discussion of the specification and the preferred embodiments  
19 of Dr. Jang's patents. And I'll move on now to talk about  
20 what I believe is the heart of our presentation, and that is  
21 to walk through each of the three principal claim terms that  
22 the Court will no doubt be focusing on.

23 Excuse me one second.

24 We're going to approach this, as I said earlier,  
25 Your Honor, in accordance with what the federal circuit has

1 clearly said should be the approach in construing claims, and  
2 that is that the discussion begins and ends with the language  
3 of the claims themselves. And we're going to use that as a  
4 paradigm for articulating our view in terms of what the  
5 proper claim constructions should be.

6 So here are the three claim terms that are being  
7 construed, Your Honor. There are five, as we count them,  
8 principal issues upon which we disagree. And this is laid  
9 out, by the way, in the introduction to our supplemental  
10 brief as well. I'll go through them very quickly.

11 With respect to an expansion column, Boston  
12 Scientific -- let me stop for a minute and take a step back.

13 One of the things that I think is going to become  
14 apparent, Your Honor, during the course of this proceeding is  
15 that even as to these three -- even as to these three claim  
16 terms on which the parties disagree and have some level of  
17 fundamental disagreement, it is not the case that Boston  
18 Scientific looks at our proposed constructions and says that  
19 we are fundamentally wrong, that we are proposing some  
20 construction that is fundamentally wrong.

21 In virtually each instance with perhaps one  
22 exception that I'll turn to in a minute, but in virtually  
23 each instance what Boston Scientific says is, fine, you say  
24 that a connecting strut column must consist of two or more  
25 connecting struts, well, they don't disagree with that. What

1 they say is that's not enough. You don't have enough  
2 restrictions in your definition; and so therefore, they add  
3 as we suggest in the middle of this slide that we say -- we,  
4 Boston Scientific, say that they have to consist solely of  
5 connecting struts. There's no other elements that can appear  
6 in a connecting strut column. And they say, in addition,  
7 each of those connecting struts must be unattached to each  
8 other.

9           So that is a pattern that I think finds -- that  
10 weaves its way through this proceeding. Each one of these  
11 five issues arises because Boston Scientific is taking the  
12 position that certain limitations must appear in whatever  
13 claim construction that the Court decides on and that in each  
14 case those are claim limitations that are extraneous to the  
15 claim; that is, whether or not they are required, they are  
16 certainly not words or concepts that are found in the claim  
17 language itself.

18           THE COURT: Well, no. I guess I mean yes, I agree  
19 that those words aren't used. And as you point out in the  
20 response brief, the words "solely" or "only" is not to be  
21 found in the specification.

22           MR. BARSKY: Yes.

23           THE COURT: But their response to that argument is  
24 that only expansion struts are mentioned, right?

25           MR. BARSKY: Well, I would leave it to Boston

1 Scientific to articulate their position better than I could,  
2 but I thought --

3 THE COURT: You could probably do it much better  
4 than I could. You might be better answering my arguments  
5 because theirs will be better.

6 MR. BARSKY: If that's their argument, yes. Then  
7 I'll just say yes, that is --

8 THE COURT: As I understand it, really what they're  
9 saying is, if all that's mentioned is expansion struts in the  
10 columns, then in the embodiments and in the specifications,  
11 then how do you make the argument that the word "solely"  
12 shouldn't be in the construction?

13 MR. BARSKY: That the word "solely" shouldn't be in  
14 the construction?

15 THE COURT: Because that's all that's in the  
16 patent.

17 MR. BARSKY: Well, Your Honor, I'll turn to that  
18 right now, in fact. In their presentation what they have  
19 said, as I understand it, is that the only embodiment that is  
20 depicted anywhere in these patents is an embodiment whereby  
21 there is an expansion column that consists of expansion strut  
22 pairs and no other elements.

23 First point is, Your Honor, that whole argument has  
24 been explicitly rejected by the federal circuit. The federal  
25 circuit has very clearly said -- and they did this as

1 recently as the Phillips en banc decision -- that they have  
2 rejected the notion that because the patent only discloses  
3 even a single embodiment that that is a basis for limiting  
4 the claims if the claims do not specify that particular  
5 embodiment and only that embodiment. So that argument which  
6 is one that weaves its way through the Boston Scientific  
7 presentation, in fact, because it applies to some of the  
8 other issues as well has been squarely rejected by the  
9 federal circuit. And we've discussed, for example, in our  
10 papers the Liebel-Flarsheim case and its progeny. But once  
11 again, it was endorsed again by the federal circuit as recent  
12 as the Phillips decision. So that's the first thing is that  
13 -- that's the first point, Your Honor.

14 The second point, and it's an important one, and  
15 maybe I can just point to this now. One of the things about  
16 this claim is that it is a comprising claim --

17 THE COURT: Right. In the response brief Boston  
18 Scientific I think, unless they conceded, but they stated, I  
19 guess, that they agreed I think essentially with your  
20 position about what it means to be a comprising claim.

21 MR. BARSKY: Yes, they did. In fact, the law is  
22 pretty settled on what a comprising claim is. And I'll  
23 actually come back to that issue in just a minute, Your  
24 Honor.

25 But I think that the point that we would want to



1 make is that comprising is what's called an open-ended  
2 transition, and it means that the claim is open. So, for  
3 example, if a claim recites an invention comprising elements  
4 A, B and C, it does not defeat that claim to add D to A, B  
5 and C as long as A, B and C are there. Among the things, for  
6 example, that the claims in this case require clearly are  
7 expansion struts, expansion strut pairs, expansion columns,  
8 connecting struts and columns, and a particular configuration  
9 of those expansion strut pairs to each other.

10 But there's nothing in this claim language that  
11 suggests that you could start, for example, with Dr. Jang's  
12 invention and add something to it and then deprive that  
13 structure of being included within the scope of this claim  
14 language. It's not just the fact that it is a comprising  
15 claim, it is the fact that before a court can limit a claim,  
16 one has to find something in the claim that suggests that  
17 limitation or in the specification. And one of the things  
18 that the Court has -- the federal circuit has clearly said is  
19 that absent some special meaning created by the  
20 specification, for example, an idiosyncratic definition of a  
21 claim term by the inventor, or absent a disclaimer in the  
22 prosecution history as to particular scope or criticism of  
23 structure and prior art that would otherwise limit the scope  
24 of the claim, absent those kinds of features in the claim  
25 specification or prosecution history, it's the ordinary and

1 plain meaning that controls.

2           So let's take a look at what that meaning is here,  
3 Your Honor. The claim talks about a first expansion strut  
4 pair. And we believe it goes on to define what an expansion  
5 column is. And, again, this is the element we're talking  
6 about now is the proper construction of an expansion column.  
7 What it says is a plurality of the first expansion strut pair  
8 forming a first expansion column. We think that defines an  
9 expansion column. It is made up of -- an expansion column is  
10 formed of a plurality of first expansion strut pairs, meaning  
11 two or more expansion strut pairs. That same exact structure  
12 appears in the second paragraph of this claim with respect to  
13 the second expansion strut pair and the second expansion  
14 column.

15           So let's start then with what we think a column  
16 means. And this is one of those definitions, Your Honor,  
17 where we made a proposal. Boston Scientific did not make any  
18 proposal with respect to it. But, basically, a column -- and  
19 the reason, by the way, Your Honor, I think it would be  
20 helpful to have a definition of column, because although we  
21 may be familiar and a jury may be familiar with what a column  
22 is, for example, in say a financial table or some other type  
23 of two-dimensional table, it's less of a familiar term  
24 perhaps with a three-dimensional object.

25           So in this particular case it's pretty clear that

1 what Dr. Jang meant by column and what the '021 and '743  
2 patents talk about is this extension of space around the  
3 circumference of the stent. So starting there with that  
4 definition of column -- and here, by the way, are two  
5 expansion columns that we've highlighted. It's element 24  
6 and the specification defines element 24 as the expansion  
7 columns.

8 Our proposed definition of an expansion column then  
9 is drawn directly from the language of the claim, Your Honor.  
10 It is a column, as we've previously just defined it, that's  
11 formed by two or more expansion strut pairs. Now, clearly as  
12 the Court has pointed out, Boston Scientific is taking the  
13 position that it can be formed solely by expansion strut  
14 pairs. And so using the approach that the federal circuit  
15 has suggested, we just go back to the claim language or to  
16 the specification and ask whether or not that is supported by  
17 the claim language.

18 And the point that I would make, Your Honor, is  
19 that the language of the claims does not say a plurality of  
20 the first expansion strut pair and no other elements forming  
21 a first expansion column or solely expansion strut pairs  
22 forming a first expansion column. It simply recites that  
23 this is what the column is formed of.

24 Now, the fact that it only mentions that the  
25 expansion column is formed with expansion strut pairs I do

1 not believe leads to the conclusion that therefore it must be  
2 only expansion strut pairs. Just as, for example, this  
3 courthouse, Your Honor, is formed of mortar and marble and  
4 wood and steel and all sorts of other structure doesn't mean  
5 that there are not other things that form this courthouse as  
6 well, whether it be materials such as plastic or what have  
7 you. And so there's nothing about the language of something  
8 being formed that would suggest it must be formed solely from  
9 that element.

10 And Boston Scientific has not argued to the  
11 contrary. Instead what they've argued is that this claim, as  
12 it was issued by the patent office, wasn't careful enough.  
13 What the patent office should have required Dr. Jang to do is  
14 specify that those expansion strut -- excuse me -- that those  
15 expansion columns are formed of expansion strut pairs and no  
16 other elements. And that's something that we know from a lot  
17 of federal circuit case law, Your Honor, and even Supreme  
18 Court case law that we cited in our supplemental brief is not  
19 the role of this Court. It is not to redraft the claims or  
20 to rewrite them or to second-guess what the patent office  
21 decided years ago after a two-and-a-half-year examination of  
22 these patents. It is rather to construe the claims and to  
23 construe the language as it was issued by the patent office.

24 The other issue that comes up -- and, by the way,  
25 Your Honor, I'm going to move on to the tubular issue, but

1 before I do that, let me just stop for a minute and see if  
2 the Court has any questions.

3 THE COURT: No, I have a question about tubular.

4 MR. BARSKY: Oh, okay.

5 THE COURT: If I remember correctly, the other  
6 patents that you talked about -- I know one begins with a "p"  
7 and I can't remember the names of the others, the Orth one  
8 and so forth as well as the stent at issue in this case,  
9 they're all designed to be -- they are all coronary stents,  
10 correct?

11 MR. BARSKY: They are used as coronary stents.

12 THE COURT: And as I understand it from the  
13 descriptions that the parties have presented about how  
14 they're used, they are inserted through veins or arteries.

15 MR. BARSKY: Yes.

16 THE COURT: Which I didn't pay attention to in  
17 biology class.

18 MR. BARSKY: Yes, the Court is exactly right.

19 THE COURT: In the shape of a vein, tubular, a vein  
20 or an artery.

21 MR. BARSKY: Sure.

22 THE COURT: You've paid even less attention than  
23 me. So I guess isn't -- I guess my question is kind of  
24 obvious.

25 MR. BARSKY: Whether or not that means that the

1     stent must be tubular?

2             THE COURT:   If a stent is being used as the stent  
3     is --

4             MR. BARSKY:   Yes.

5             THE COURT:   -- does it have to be tubular?

6             MR. BARSKY:   I will absolutely agree with that.  
7     The stent is tubular in shape.   It is an elongated hollow  
8     cylinder.   No question that that's tubular.   That's not the  
9     argument that Boston Scientific is making however.   They're  
10    arguing that the expansion column is a tubular structure.  
11    And that is where the friction is between our respective  
12    claim construction positions.

13            We would readily concede -- in fact, I believe the  
14    '021 patent specifically describes the stent as being  
15    tubular, and so we would not quibble with that in the  
16    slightest.   The issue, though, is whether the expansion  
17    column should be construed as being -- the column itself, and  
18    we'll take a quick look at that right now, should be  
19    construed as being tubular.

20            Here's the important point.

21            THE COURT:   Just a moment.

22            MR. BARSKY:   Here's an important point, Your Honor,  
23    with respect to this issue; that is, that Dr. Jang in coming  
24    up with his patent criticized the tubular members or tubular  
25    expansion members of the prior art.   And this is something --

1 this is a point we made in our supplemental brief. He found  
2 that those tubular members were too rigid. Why? Because --  
3 and here's an example of, for example, the Palmaz tubular  
4 member. And if the Court will recall, the Palmaz stent is  
5 made up of a series of these types of tubular members.

6 But one thing the Court will notice immediately  
7 about the Palmaz geometry is that it is closed on both ends.  
8 It has a closed cell structure that surrounds that interior  
9 expansion cell, if you will.

10 And it is exactly that that Dr. Jang was trying to  
11 improve over with his patent. He believed that the stents  
12 when they are made with those closed cells became  
13 longitudinally inflexible. And when the stent was being  
14 threaded through the femoral artery and the thigh up about  
15 six feet of vasculature to the coronary arteries, it has to  
16 navigate these rather torturous bends in the body's anatomy,  
17 and that those closed cells, those tubular members in the  
18 prior art, rendered the stent so inflexible that it made it  
19 very difficult for an interventional cardiologist to actually  
20 get the stent where it needed to be. So that was something  
21 that he criticized in the prior art.

22 By contrast, if we take a look, for example, at yet  
23 another figure, this is 9F from the '021 patent, and we look  
24 at the expansion --

25 THE COURT: What sort of a cross-section is that?

1 MR. BARSKY: This one right here?

2 THE COURT: Yes.

3 MR. BARSKY: This is the stent cut open along one  
4 of its -- along its length and flattened. So that's looking  
5 at the stent. If one were to -- and, again, at the bottom of  
6 that, of this figure, Your Honor, you can see the  
7 longitudinal length 16, so that tells the Court that we are  
8 looking at it lengthwise at this point.

9 THE COURT: Thank you.

10 MR. BARSKY: So let's take a close look then at the  
11 expansion column, because that's the issue for the issue of  
12 whether or not it's tubular. It's that element 24. The  
13 expansion column specification very clearly teaches -- and we  
14 don't have any disagreement on this I don't think. The  
15 expansion column is composed solely of expansion in the  
16 preferred embodiment depicted here. You can see that it  
17 consists of expansion strut pairs which are expansion struts  
18 joined together by the joining struts and linked together as  
19 it is shown here.

20 If we take a closer look at that particular  
21 structure we can see immediately that, unlike the Palmaz  
22 tubular member, it is open on one end and closed on the  
23 other. As we talked about earlier with the expansion strut  
24 pairs having distal ends and proximal ends, well, these  
25 expansion strut pairs have a closed end formed by the joining



1 strut and an open end. And so that was the improvement that  
2 Dr. Jang was trying to make over prior art tubular members or  
3 expansion members such as Pinchasik and Palmaz.

4 Now, the other important thing that I want to point  
5 out, Your Honor, is that this is not the first proceeding in  
6 which Boston Scientific has addressed claim construction for  
7 the '021 patent. As we pointed out in our supplemental  
8 brief, there's litigation pending before Judge Robinson in  
9 the District of Delaware where Boston Scientific is asserting  
10 the '021 patent or at least one claim of the '021 patent.  
11 And during the course of that proceeding one of the things  
12 that they pointed out with respect to this whole issue of  
13 tubular is that stents with closed cells, such as Pinchasik,  
14 teach a fundamentally different stent structure. Why?  
15 Because it has these tubular members.

16 Now in this court, though, Boston Scientific is  
17 taking a different position and they're saying that the very  
18 structure that they distinguished in the District of Delaware  
19 is a necessary structure for a stent built in accordance with  
20 Dr. Jang's invention.

21 So that goes to the question of whether or not they  
22 are taking consistent positions.

23 THE COURT: Could you go back to that prior slide?

24 MR. BARSKY: Absolutely. Similarly, Boston  
25 Scientific acknowledged in that proceeding in Delaware that

1 Dr. Jang was seeking to overcome the drawbacks of these  
2 closed cell prior art tubular members, and yet now what they  
3 say -- and this was something that was in the Squire  
4 declaration in exactly the same language as it appeared in  
5 Boston Scientific's legal brief -- now they say that the  
6 expansion columns must form a tubular structure; otherwise,  
7 they can't even do their job.

8 So they've taken inconsistent positions on this.  
9 And we're not exactly sure why this is such an issue of such  
10 importance in this proceeding, but we do know that it is not  
11 the case that the expansion columns of Dr. Jang's patents are  
12 tubular structures.

13 Anything more on expansion columns, Your Honor, or  
14 may I move on?

15 THE COURT: Go ahead.

16 MR. BARSKY: Thank you. So now we're going to deal  
17 with the two issues that arise in interpreting the phrase  
18 "connecting strut column." There's one issue that is  
19 repeated from the expansion column, and that is that Boston  
20 Scientific says that a connecting strut column must have only  
21 connecting struts and nothing else. They also say that a  
22 connecting strut column must have connecting struts that are  
23 unattached to each other. And that, again, frames the  
24 dispute between the parties on these proposed extraneous  
25 limitations.

1           So once again, Your Honor, we start where the  
2       federal circuit tells us to start, and that's with the  
3       language of the claim itself. The claim talks about a first  
4       connecting strut, and it talks about how a plurality of the  
5       first connecting strut form a connecting strut column.  
6       That's pretty clear. We believe that that is a definition  
7       within the claim itself of a connecting strut column. It  
8       doesn't say, as Boston Scientific would have it, that they're  
9       unattached to each other and it doesn't say there's nothing  
10      else, no other elements besides connecting struts.

11           What are we talking about? Again, this is the  
12      connecting strut itself. These are the four sections that  
13      the Court viewed earlier as well as the column that is formed  
14      in at least one embodiment of Dr. Jang's patent. It is  
15      figure 5.

16           Your Honor, is your monitor cutting off at the  
17      bottom? I'm just looking over here and I see --

18           THE COURT: It is cutting off at the bottom.

19           MR. BARSKY: I don't know if the screen over here  
20      is easier for the Court to see.

21           THE COURT: I can read that.

22           MR. BARSKY: Would the Court like me to move it  
23      closer to the --

24           THE COURT: No, I can actually read the numbers.

25           MR. BARSKY: Very well. So here, Your Honor, is

1 element 26 which the specification defines as being a  
2 connecting strut column in one of Dr. Jang's embodiments.  
3 This is why we have proposed the following definition: That  
4 it is a column as we defined it earlier that is formed by two  
5 or more connecting struts. Again, Boston Scientific is  
6 seeking to have two additional limitations added to that  
7 essential formula. One is that it is formed solely of a  
8 plurality of connecting struts and the other is that those  
9 connecting struts must be unattached to each other.

10 So we think that what the Court should do is test  
11 that proposition by, again, going back to the language.  
12 We've looked at it already. It is clear there is nothing  
13 about unattached, nothing about solely, about having  
14 connecting struts and no other elements in the language of  
15 the claim itself, nor is there anything in the specification  
16 that would suggest anything along those lines.

17 Again, this is not the first time that Boston  
18 Scientific has had occasion to construe a first connecting  
19 strut column. They did so in the District of Delaware, again  
20 in front of Judge Robinson. And there they made a proposal  
21 for this claim language to be construed. And what do they  
22 say? They say it should be construed. And what did they  
23 say? They said it should be construed simply. That's Boston  
24 Scientific's word to mean that the first connecting strut  
25 column is formed with multiple connecting struts. That's our

1 position almost word for word in this case.

2 Now, I do want to point out that is a slightly  
3 different -- that language comes from a different claim. So  
4 what they were proposing was a slightly different -- or,  
5 rather, the phraseology that they were construing was  
6 slightly different, but it completely encompassed this notion  
7 of a connecting strut column. And that was the position that  
8 they took in litigation that remains pending in the District  
9 of Delaware. Now, of course, they have a very different  
10 position as we've already discussed.

11 So Boston Scientific looks at our claim language as  
12 issued by the patent office and effectively says that the  
13 patent office should have required Dr. Jang to make two  
14 additions to this language. First, just like with the  
15 expansion column, the patent office should have made sure  
16 that the claim language is clear that you can't have any  
17 elements other than connecting struts in a connecting strut  
18 column. The second thing they say, of course, is that each  
19 of those connecting struts have to be unattached to each  
20 other.

21 Now, when we think about what Boston Scientific's  
22 arguments are on this point, they're not really all that  
23 different in kind from the arguments that were made earlier;  
24 and that is, that they are arguing very clearly that because  
25 this is the only embodiment that is disclosed anywhere in

1 Dr. Jang's patents, and they are very clear about this  
2 position in their supplemental brief, that because it is the  
3 only embodiment it must therefore be the sole embodiment that  
4 is claimed. And that, again, Your Honor, is a proposition  
5 that has been squarely rejected by the federal circuit in the  
6 cases that we have cited.

7 One of the other principles that the federal  
8 circuit has articulated, Your Honor -- and this goes most  
9 clearly to this issue of unattached. One of the other  
10 principles is that --

11 THE COURT: Excuse me for interrupting you. Let's  
12 go back a moment.

13 MR. BARSKY: Sure.

14 THE COURT: I think your last argument was that --  
15 your last point was that the defense argued in their  
16 supplemental brief that because --

17 MR. BARSKY: It was the only embodiment.

18 THE COURT: -- it was the only embodiment that was  
19 described in the patent, that it must be -- that the Court  
20 should place significance on that, but the parties have I  
21 think blurred the line a bit because earlier you made that  
22 argument with respect to the specifications. And there is a  
23 slight difference -- there is a difference between  
24 embodiments and specifications, correct?

25 MR. BARSKY: Not really, Your Honor.

1 THE COURT: You're using that term interchangeably?

2 MR. BARSKY: Yes, I am, Your Honor.

3 THE COURT: Well, my understanding is that there's  
4 a difference between the two. And your understanding is  
5 those two terms can be used interchangeably?

6 MR. BARSKY: Yes, Your Honor. If I may elaborate?

7 THE COURT: If that's the way you're using the  
8 term, I will consider your argument in that light, but go  
9 ahead.

10 MR. BARSKY: Well, I want to stop on this because  
11 I'm just concerned that I've not made our position clear  
12 enough, so let me see if I can backtrack a little. And  
13 forgive me, Your Honor, if I'm telling the Court information  
14 that the Court is already well aware of.

15 THE COURT: Go ahead. I think I know what you're  
16 about to say but go ahead.

17 MR. BARSKY: As I parse the patent, there's --  
18 obviously, you have the cover page. Then you have a series  
19 of drawings and those drawings depict various embodiments.

20 THE COURT: Yes. Go ahead.

21 MR. BARSKY: Various embodiments of the invention,  
22 the ones that the inventor has chosen to hold out and say  
23 here's an example of a great way of building a stent. It is  
24 one example, two examples, whatever it may be. This is the  
25 best way. In fact, there's a requirement.

1 THE COURT: Preferred embodiment.

2 MR. BARSKY: The best way I know of making a stent  
3 in accordance with my invention. And then after those  
4 drawings, which are an integral part of the specification or  
5 written description of the patent, there are series of  
6 sections, such as background of the invention and a summary  
7 of the invention. And then we get to in the '021 patent I'm  
8 looking at column 5 on about line 35, we get to something  
9 called detailed description. And this is the engineering  
10 level description. Here's how you make --

11 THE COURT: That's what I think of as the  
12 specification. I think of the drawings as the embodiments  
13 and that as the specifications. The text is the  
14 specifications. And if I'm incorrect, I'm happy to have that  
15 pointed out to me now.

16 MR. BARSKY: I can only say this, Your Honor, which  
17 is that I have always considered those to be part and parcel  
18 of the specification. In other words --

19 THE COURT: The drawings?

20 MR. BARSKY: The drawings, yes, absolutely.

21 THE COURT: I always think of the drawings as the  
22 embodiments and the text as the specifications, but I guess  
23 you all do not. That's fine. I just want to make sure that  
24 I am understanding your terms.

25 MR. BARSKY: Maybe we can clarify this. I don't



1 know if Mr. Wolf wants to address this or not, but --

2 MR. WOLF: Your Honor, I think there might be two  
3 ships passing in the night because a specification is  
4 everything from the first words of the patent until you get  
5 to the claims. Embodiments are a subset of the  
6 specification.

7 THE COURT: That may be a better way of expressing  
8 my understanding.

9 MR. WOLF: That's what I understand. And to the  
10 extent that the text is just describing the figures, then  
11 they are part and parcel of the embodiments, but there's more  
12 to a specification than just the embodiments.

13 THE COURT: Thank you. That clarifies my  
14 understanding. That was my understanding.

15 MR. BARSKY: Yes.

16 THE COURT: Thank you very much. In substance I  
17 don't think that changes your argument.

18 MR. BARSKY: No, it doesn't, Your Honor, but it  
19 certainly makes me aware of a need for me to be a little bit  
20 more precise when I talk about these particular issues.

21 So I believe where I left off, Your Honor, was that  
22 this is the second change that Boston Scientific would like  
23 to make to the language that the patent office has issued.  
24 And I believe where I was going was talking about the fact  
25 that really their only argument on this unattached point is

1 that in all of the specific embodiments, depicted for example  
2 in the drawings, or discussed for example in the  
3 specification, in all of those embodiments the connecting  
4 struts are, in fact, unattached to each other, and that  
5 therefore your claims are limited to those particular  
6 embodiments. That's the proposition that has been squarely  
7 and repeatedly rejected by the federal circuit that I just  
8 wanted to reiterate for the Court.

9 Absent any questions --

10 THE COURT: Go ahead.

11 MR. BARSKY: I appreciate the Court's time. I know  
12 I've gone over. I'll go quickly through this last part.

13 The last issue, Your Honor, is whether it goes to  
14 the definition of a connecting strut. Boston Scientific --  
15 and there's an issue here because Boston Scientific said that  
16 a connecting strut must couple only adjacent expansion  
17 columns. Now, we have -- let me start off with a small  
18 distinction that I would make; and that is, that the  
19 connecting struts, in our view, are clearly articulated in  
20 the specification as connecting expansion strut pairs, not  
21 expansion columns, and that it is only a series of connecting  
22 struts arranged in a column that connect expansion columns to  
23 each other.

24 But putting that aside, that's not really the core  
25 of the dispute. The core is whether or not a connecting

1 strut must connect only adjacent expansion columns.

2           So, once again, we start with the claim language.  
3 It talks about a first connecting strut. The claim language  
4 then goes on to tell us a little bit about the sections of  
5 that connecting strut and how they couple certain expansion  
6 strut pairs. In particular, it talks about it coupling the  
7 distal -- being coupled to the distal end of a first  
8 expansion strut pair in one column and the proximal end of a  
9 second expansion strut pair in another column, another  
10 expansion column. That's, again, the function of this  
11 particular connecting strut. It connects pairs, not columns.

12           We think, again, that this provides all the  
13 information the Court needs in order to construe the language  
14 at issue. And that's why we're suggesting that a connecting  
15 strut be construed as a strut that couples an expansion strut  
16 pair in one column with an expansion strut pair in another.

17           Boston Scientific, of course, is arguing that those  
18 expansion columns must be adjacent. So I want to go back to  
19 the claim language and test that hypothesis with one  
20 particular principle in mind, Your Honor; and that is, that  
21 as the federal circuit has told us in the Phillips case, that  
22 the context in which a term is used in the asserted claims  
23 can be highly instructive. So the federal circuit is saying  
24 that not only is the claim term at issue to be examined but  
25 look at the way that it is used in context. So let's take a

1 look at how it's used in context, Your Honor, and see what  
2 the language of the claim says about this issue of adjacency.

3 And it turns out, Your Honor, that, in fact, the  
4 word "adjacent" does appear in claim one. In fact, it  
5 appears twice. It appears to describe the relationship of  
6 the expansion struts to each other, a first expansion strut  
7 and a second expansion strut to each other. What's that  
8 referring to? It is referring to those expansion struts that  
9 are coupled by the joining strut in separate columns.

10 When the language of the claim is directed to  
11 describing the expansion columns, there is no such  
12 requirement of adjacency. It simply says you have a first  
13 expansion column and you have a second expansion column.

14 THE COURT: How could they not be adjacent?

15 MR. BARSKY: Well, one way they could not be  
16 adjacent, Your Honor, is that the connecting strut can skip  
17 or -- can skip elements. That's one way it could do it.  
18 There's no limit, I suppose, to the imagination of people  
19 trying to build Dr. Jang's invention. Dr. Jang's invention  
20 goes to a specific geometry and to the way in which you link  
21 expansion strut pairs, for example, in an offset manner. And  
22 so that is one way in which they could not be adjacent.

23 But the important point here, Your Honor, I think  
24 is that when Dr. Jang and when the patent office wanted to  
25 make sure that there was a requirement of adjacency between

1 expansion columns, the claim language said it. It didn't do  
2 so with respect to the expansion columns themselves. We  
3 think that is a big difference. And, again, the expansion  
4 columns as opposed to the struts are depicted in this element  
5 No. 24 in this figure. And so when we look at that claim  
6 language we think it is pretty clear from the context, as the  
7 federal circuit has advised the Court to consider in the  
8 context, that there is no requirement of adjacency.

9 What does Boston Scientific rely on? They rely on  
10 a description that appears in the specification of a specific  
11 embodiment of Dr. Jang's invention. In particular, they rely  
12 on language that refers specifically to figure 1A which we  
13 looked at earlier. And they quoted to the Court, as we  
14 anticipated in our opening brief and as we discussed at  
15 length in our supplemental brief, they rely on language that  
16 quite clearly is talking about a specific embodiment of  
17 Dr. Jang's invention, because it talks about those connecting  
18 struts connecting adjacent expansion columns.

19 Now, one of the things that we did in our  
20 supplemental brief, and I can talk about it now or not as the  
21 Court would like, is we explain why that language cannot be a  
22 definition of a connecting strut, because it would result in  
23 there being inconsistent usages of that term in the  
24 specification. That's discussed in our supplemental filing,  
25 Your Honor. But the language obviously goes on to continue

1 to describe a specific embodiment of Dr. Jang's invention.

2 Now, one of the other points I want to make and  
3 this goes back -- I'm sorry, Your Honor, but this goes --  
4 well, it's not going to work. I'll go forward and I'll come  
5 back to this issue.

6 Here's an example of what the federal circuit has  
7 said very recently on this very issue, because, again, Boston  
8 Scientific's position is, look, the only connecting struts  
9 you have are connecting struts that connect adjacent  
10 expansion columns so how could it not be a limitation that's  
11 in this claim? And the federal circuit in Phillips obviously  
12 directed its attention to this particular issue and made  
13 clear that the fact that there is a specific embodiment --

14 THE COURT: But the comeback to that is, as the  
15 other side points out in their supplemental papers I think,  
16 at least I think that's where it is, is that in leaving aside  
17 the pre-Phillips cases that you distinguish, leaving aside  
18 those cases and looking at it primarily because the Phillips  
19 case is so recent, it was in September I think of last year,  
20 there has been very few cases since then, if any, other than  
21 some scattered district court cases.

22 Even so, you have to look at -- as the defense  
23 points out, you have to look at the language in the  
24 particular patent as to whether -- for example, if there's  
25 only one embodiment that's shown in the patent, the courts

1 have instructed -- I think it's even in Phillips -- that you  
2 look at the language in the particular patent as to whether  
3 or not there really are -- the inventor is really describing  
4 that embodiment in such a way that there is -- let me put it  
5 another way.

6 That the Court in construing the disputed terms  
7 is obliged to treat that embodiment as something that  
8 probably -- well, as something that is more likely to be  
9 the -- not just the preferred but perhaps the only embodiment  
10 of the invention. In other words, there are patents in which  
11 there is only one preferred embodiment, and that's not a  
12 coincidence, put it that way. And there are cases that say  
13 you have to look at what the preferred embodiment or  
14 embodiments are and you have to put some weight on that. So  
15 it's not something that the Court pays no attention to.

16 MR. BARSKY: Absolutely true. That's absolutely  
17 true, Your Honor. You know, district courts are put in this  
18 position in every claim construction hearing.

19 THE COURT: That's why you make the big money.

20 MR. BARSKY: And the reason for it is is that you  
21 have -- you know, stepping back for a second, you have these  
22 two canons of claim construction that compete with each  
23 other. The first is that the claims must be read in light of  
24 the specification. The second is that you can read the  
25 claims -- you have to read the claims in light of the

1 specification, but don't import limitations from the  
2 specification into the claim.

3 THE COURT: Right. And that's the tightrope.

4 MR. BARSKY: And that's exactly the tightrope. And  
5 that's the line and it's often difficult to draw. And  
6 Phillips recognizes this as well as a number of other cases,  
7 such as the Renishaw case which we cited in our brief,  
8 recognize this and they talk about how you deal with those  
9 situations, how district courts are supposed to, on the one  
10 hand, avoid reading in limitations, but on the other hand,  
11 make sure the Court is reading the claims in light of the  
12 specifications.

13 And one of the things that the federal circuit has  
14 pointed to is the fact that absent some specific departure  
15 from the ordinary and plain meaning of the language of the  
16 claims, the ordinary and plain meaning of the language --  
17 ordinary and plain meaning of the claims should control. And  
18 Phillips, Renishaw and a number of other cases give very  
19 specific examples where, for example, the patentee  
20 distinguishes the prior art. That kind of conduct or that  
21 kind of statement in the prosecution history or in the  
22 specification distinguishing another structure as inferior  
23 could be used to limit the scope of otherwise broad claim  
24 language. That's a departure that's offered from the  
25 ordinary and plain meaning that's authorized by the federal



1 circuit. Great example is in this case where Dr. Jang  
2 distinguished the tubular members or tubular structures  
3 Pinchasik and Palmaz.

4 Another instance in which or another tool that the  
5 federal circuit has given the district courts for navigating  
6 this course is that sometimes inventors use terms in  
7 accordance with meanings or definitions that they make up.  
8 And in those cases where the patentee is called his or her  
9 lexicographer, in those cases it is the patentee's own  
10 definition that controls. So if the patentee has applied a  
11 very narrow definition to an otherwise broad claim term, it's  
12 the narrow definition that controls.

13 But absent a situation like that, and we don't have  
14 that situation here, either of those situations here in this  
15 case, it's the ordinary and plain meaning that controls. And  
16 so that is how I would or that is how I do, in fact, think  
17 about how to balance those competing canons of claim  
18 construction.

19 In this case I think that neither of those  
20 situations, an expressed disclaimer or an idiosyncratic  
21 definition of an otherwise broad claim term are present. And  
22 so it is for that reason that I don't think that the  
23 preferred embodiments or the specification of Dr. Jang's  
24 patents can be used to limit language in the claims that is  
25 not so limited.

1           Your Honor, I'm just moving forward then and  
2 wrapping up this one section. I do want to talk about, once  
3 again, how what Boston Scientific is seeking to do is define  
4 connecting strut in a way that the patentee did not in his  
5 patent and nor did the patent office require. Actually,  
6 before I get to that, I want to make one other point; and  
7 that is, that I talked very briefly about how the federal  
8 circuit has said the context of the claim language is  
9 important and how here the context of the claim language on  
10 this issue, the issue of adjacency, screams out for there  
11 being no requirement of adjacency as to expansion columns.  
12 And that is because that when the patentee and the patent  
13 office wanted to require adjacency, that word was used in the  
14 claim.

15           We addressed that issue in our opening brief, Your  
16 Honor. Boston Scientific had three weeks to prepare its  
17 supplemental brief and never addressed that issue once. So  
18 we don't have Boston Scientific's response on that, but I  
19 would submit it's because there is no response to it because  
20 it cannot be more clear that here the context of that claim  
21 language itself answers the question that has been raised by  
22 Boston Scientific's proposed construction. So, Your Honor,  
23 once again, Boston Scientific is asking this Court to insert  
24 a limitation into the claim language that neither the patent  
25 office nor the patentee in this case saw fit to include.

1           We've now covered or I've now covered each of the  
2 three claim terms and the five issues that are at principal  
3 issue here in this proceeding, Your Honor.

4           This, in effect, is what the final redraft from  
5 Boston Scientific looks like. It is, in effect, a request  
6 that -- it is an observation that the patent office didn't do  
7 its job. It should have required that these additional  
8 limitations be added. We think that is a clear departure  
9 from the mandate of the federal circuit.

10           I don't know if the Court needs a summary of our  
11 claim construction positions on these three issues or not,  
12 but I do want to point out that in each and every case our  
13 claim constructions arise directly out of the language of the  
14 claims and the specification. And in each case on each of  
15 these five issues Boston Scientific is proposing instructions  
16 that are untethered to the language of the claims itself but  
17 in each case arise out of the specification or in some cases  
18 the prior art.

19           And that concludes my presentation, Your Honor, but  
20 I'm willing to answer any questions if the Court has any.

21           THE COURT: Not at this time. Thank you very much.

22           MR. BARSKY: Thank you very much for your time.  
23 Appreciate it, Your Honor.

24           THE COURT: Mr. Han.

25           MR. HAN: Mr. Wolf.

1 MR. WOLF: What's the Court's pleasure, Your Honor?

2 THE COURT: You think about 45 minutes?

3 MR. WOLF: Probably going to be a little longer in  
4 light of the length of Mr. Barsky's presentation, but I would  
5 say an hour on the outer limits.

6 THE COURT: Let me consult.

7 MR. WOLF: Sure.

8 THE COURT: Let's take a 10-minute break and then  
9 we'll continue through.

10 (Recess)

11 MR. WOLF: Good morning, Your Honor. One  
12 technical glitch, we were using the same set-up and there  
13 seems to be a bit of incompatibility between the computer and  
14 the little monitors. You see there is a little bit of a  
15 jittering going on. I would recommend, if it please the  
16 Court, that you turn that monitor off and just focus on the  
17 big monitor, but whatever the Court's pleasure is.

18 THE COURT: I will leave it on in case there's  
19 something too small for me to read.

20 MR. WOLF: Thank you, Your Honor. Matthew Wolf for  
21 the Boston Scientific defendants. With me are  
22 Peter Gaffner and Todd Masall from the client, both with  
23 Boston Scientific.

24 Your Honor, the Court is well aware that a hung  
25 jury is not 12 people sent to the gallows, and while a brick

1 house is a house made of brick, a dog house is not a house  
2 made of dogs. How do you know this? Because you're steeped  
3 in this. Why do we know what a hung jury is? Because we're  
4 all lawyers here. We know what the term means.

5 Connecting strut means something to those skilled  
6 in the art like Dr. Jang. Expansion strut means something to  
7 those that work in the field. And those that work in the  
8 field know that expansion struts and connecting struts are  
9 not the same thing.

10 The fundamental goal that we had when attempting to  
11 arrive at our claim construction was explaining what a  
12 connecting strut is and what an expansion strut is and  
13 showing how they're not the same. And the language we have  
14 chosen to propose to this Court is to reflect that basic  
15 reality.

16 The language chosen by Dr. Jang's counsel in this  
17 case attempts to blur the distinction. In fact, if adopted,  
18 would succeed in blurring the distinction between expansion  
19 struts and connecting struts and expansion strut columns and  
20 connecting strut columns and would blur it despite the fact  
21 that everyone that practices in this field knows what those  
22 terms mean.

23 We will go into great detail as to what the terms  
24 mean and how we know what the terms mean, but let's start  
25 with a couple background notions. The first, the context of

1 this discussion. Just two weeks ago Boston Scientific had a  
2 judgment affirmed against Johnson & Johnson on one claim of  
3 the Jang patents that covered \$3 billion in sales. That's  
4 one case, one defendant, \$3 billion in sales. Boston  
5 Scientific has every interest in this case in maintaining the  
6 broadest possible construction of the Jang patents consistent  
7 with their validity.

8 Dr. Jang is not so encumbered. His damages if he  
9 wins are capped, are capped already at BSC sales. He has no  
10 interest like BSC does in maintaining the validity of his  
11 patents. So we're at an unusual posture as a defendant in  
12 the case. We want the Court to adopt a broad construction,  
13 but it must be a construction consistent with the validity.

14 The second point -- and you'll be hearing about  
15 this much more in a few months; that is, that the way  
16 Dr. Jang's contract with BSC was constructed, he received  
17 \$50 million up front. And the deal was one of two things  
18 happened. If we used his technology within a certain period  
19 of time, he got a royalty on that technology. If we didn't  
20 use the technology, we owed him \$10 million more,  
21 essentially, a pay or play contract. We wrote him the check  
22 for \$10 million because we didn't use his technology. He  
23 cashed the check for \$10 million.

24 Now, he comes to this Court asserting a claim  
25 construction that he couldn't have believed when he cashed

1 the check for \$10 million. He couldn't have actually thought  
2 his patent meant what it said at the time or else he wouldn't  
3 have cashed the check, but he did. So we hope to prove in  
4 discovery as this case goes forward that we will never have  
5 to get to the infringement issues, that there will be  
6 significant estoppel, waiver, accord and satisfaction,  
7 whatever label you choose to put on it. But that's a  
8 backdrop to this discussion of what the parties' motivations  
9 and true views of the patent construction are.

10 I'm going to talk about four major areas, first a  
11 brief discussion of stent technology and the prior art. I'm  
12 going to move to the background of the Jang patents trying  
13 not to be redundant with Mr. Barsky's presentation, and then  
14 I'm going to talk about principles of claim construction.  
15 And, Your Honor, I trust you recognize by your questions how  
16 important this is because the landscape has shifted in the  
17 last year. What was uncertainty is now certainty. What was  
18 once duelling camps in the federal circuit --

19 THE COURT: You're talking about the Phillips case.

20 MR. WOLF: Exactly, Your Honor.

21 THE COURT: The Phillips case came out the day  
22 before I had a Markman hearing in September, plus I'm partial  
23 to it because of the name.

24 MR. WOLF: We understand.

25 THE COURT: It's a very helpful case as far as I

1 think all trial courts are concerned. It gives a lot of  
2 guidance.

3 MR. WOLF: Absolutely, Your Honor. And we'll be  
4 talking about how Phillips plays into this case and what  
5 Phillips' effect has been on these duelling camps that  
6 existed before. And then finally, but at the greatest  
7 length, we'll talk about the claim terms in dispute.

8 So let's begin by stent technology and the prior  
9 art. I just put together a brief animation to show how  
10 stents work. There's a blood vessel. You can see it's  
11 clogged with plaque. In goes a stent mounted on a balloon.  
12 That balloon is going to be expanded and push the plaque  
13 back. The balloon is then deflated and withdrawn. And if  
14 all goes well, that artery will now be clear and the patient  
15 will live a long, happy, healthy life.

16 That's the technology we're talking about here.  
17 And the first significant balloon-mounted expandable stent  
18 was the Palmaz stent.

19 Your Honor, is your picture clear?

20 THE COURT: My picture is fine.

21 MR. WOLF: I apologize for the glitch. As you can  
22 see, Your Honor, this first balloon-mounted expandable stent  
23 involved diamond shaped expansion segments attached to each  
24 other. There are no connectors. And as Dr. Jang recognized  
25 in his patent, as many had recognized before, there were



1 problems with that. It wasn't very flexible. So what  
2 happened? Let's go to the next slide.

3 Dr. Palmaz came out with a new patent. Now, I  
4 believe Mr. Barsky misspoke when he said that it was Dr. Jang  
5 that thought of connectors, because, in fact, there were  
6 connectors throughout the prior art long before Dr. Jang's  
7 patents were filed. And one of them is shown here. We can  
8 see in red the expansion segments and then in blue the  
9 connecting segments, the connecting struts.

10 These then were taken forward in various  
11 permutations. In the upper left we see the Pinchasik, in the  
12 bottom we see Orth, in the upper right we see Fischell.  
13 These are all prior art stents. Lots of different shapes but  
14 they were all made of the same basic components. At least  
15 certainly with Fischell and Orth you had expansion struts and  
16 connector struts. These were the building blocks of stents.

17 Against this crowded prior art backdrop Dr. Jang  
18 brought forward his invention. And let's talk about his  
19 invention. First, we have expansion struts. They are  
20 attached circumferentially by joining struts which are called  
21 expansion strut pairs when the two struts are put together  
22 with a joining strut. There are then connecting struts. And  
23 these connecting struts -- here is the invention of  
24 Dr. Jang's patent. The connecting struts allow the expansion  
25 strut pairs to be circumferentially offset. If you look at

1 the prior art patents, you have the strut pairs that were on  
2 the same plane.

3 What Dr. Jang did, and that was clever and that  
4 allowed us to win the judgment we did against J&J and allows  
5 us to move forward, is to offset them. That's the invention.

6 THE COURT: When you say "offset," you mean that  
7 what you have shown here in red, it is not exactly parallel?

8 MR. WOLF: Exactly, Your Honor. If you look at the  
9 upper left-hand picture you see that that strut pair, that  
10 horseshoe, is a little lower than the one above it. And  
11 there are advantages as well as disadvantages. I mean, it  
12 depends on the physician, but there are advantages to that  
13 particular structure and Dr. Jang thought of that. And that  
14 was the reason we paid him to date \$60 million because it was  
15 a clever idea. It's just not a clever idea as embodied in  
16 the Jang patents that we practiced.

17 So let's move on. These expansion struts and  
18 connecting struts then end up in columns. And you can see in  
19 the red the expansion strut columns and in the blue the  
20 connecting strut columns. This is the fundamental  
21 architecture for all the Jang patents for the entire  
22 specification for every embodiment. This is the basic  
23 building blocks of the Jang patent.

24 Now, let's talk about how the Jang building blocks  
25 work. Why don't we just run the animation. You can see the

1 red and the blue are the expansion struts and the connecting  
2 struts. And as the balloon blows them up, you see that the  
3 expansion struts expand circumferentially to make the larger  
4 two and the connecting struts hold things together.

5 You can see and I have now put right onto the  
6 picture from the patent what Dr. Jang says. A stent is an  
7 expandable mesh-like tube made of metal. I want to talk  
8 about tubular here, slightly out of order, but there is a  
9 fundamental disconnect apparently between the parties on  
10 tubular.

11 If we can go to the next slide actually and show  
12 this animation. This is the stent at work. You can see the  
13 red and the blue, the expansion in red and the connecting in  
14 blue. Now it gets expanded. And there's the tubular stent.  
15 Now we're going to remove the connecting struts.

16 What we have there are the expansion struts in  
17 expanded form with the connecting struts removed. So when we  
18 say that the expansion struts are tubular, you can see that  
19 each of the individual expansion strut columns forms a tube,  
20 a series of tubes that are then connected by the connecting  
21 struts. That's the basic architecture of the Jang patent.

22 I don't think this fight over tubular that the  
23 parties seem to have has any meaning to the infringement  
24 analysis. We just think it's the right definition.

25 THE COURT: Excuse me. What did you say was

1 removed?

2 MR. WOLF: The connecting strut columns.

3 THE COURT: Oh, the columns.

4 MR. WOLF: Why don't we rerun the animation just so  
5 we can talk through it again.

6 So there's the Jang stent in the unexpanded state.  
7 It has now been blown up. And now we have removed what are  
8 the connecting stents for visual purposes. They are  
9 obviously there when the operation is done but just so the  
10 structure can be understood. And we can see now what  
11 expansion struts do. Expansion struts are what do the work  
12 of the stent. They are what hold open the artery in the  
13 tubular form.

14 Now, Mr. Barsky -- obviously, we weren't clear in  
15 our brief. What Mr. Barsky seemed to be talking about in  
16 referencing the disconnect with the J&J case where he put the  
17 juxtaposition of the two terms is whether the cells -- and  
18 the cells are the term we use either for the horseshoe shaped  
19 thing or in the older Palmaz, the diamond shape, whether  
20 those cells are tubular or not, because some patents have  
21 tubular shaped cells.

22 That's not what we're talking about here. When we  
23 say "tubular," we mean when the expansion strut is expanded  
24 it forms the same shape as the artery. It has got to do its  
25 work. It has to hold open the artery. And just as the

1 artery is a tube, so, too, must the stent be and the  
2 individual component expansion column. So I think this might  
3 be a pillow fight, not something that really needs to be  
4 resolved in this particular way because it seems to be based  
5 on miscommunication.

6 So, anyway, Dr. Squire we had talked about the  
7 stent geometry, but in light of the Court's previous  
8 discussion we'll move past it.

9 Let's talk about the principles of claim  
10 construction that are going to guide us.

11 First is that the specification is the best guide  
12 to the meaning of disputed terms. Second -- and we'll talk  
13 about these in great detail -- the use of comprising language  
14 does not expand the scope of claims. Claim terms should not  
15 be construed so as to render distinctions between them  
16 meaningless.

17 THE COURT: Can I ask you to speak a little more  
18 slowly.

19 MR. WOLF: Absolutely, Your Honor. The lunch hour  
20 was obviously invading my thoughts.

21 Claim terms should not be interpreted in a way that  
22 would render them invalid. And we talked about extrinsic  
23 evidence already, and obviously, I won't belabor that point.

24 What Phillips taught us is that the specification  
25 is the most important tool in deciding what claim terms

1 meant. One passage, "Ultimately, the interpretation to be  
2 given a term can only be determined and confirmed with the  
3 full understanding of what the inventors actually invented  
4 and intended to envelop with the claim. The construction  
5 that stays true to the claim language and most naturally  
6 aligns with the patent's description of the invention, the  
7 specification, will be in the end the correct construction."

8 Now, why is this important? Your Honor, almost  
9 every case cited by Dr. Jang for the proposition that we go  
10 to the claims, the claims, the claims, come prior to  
11 Phillips. We've put together this time line here showing the  
12 cases that were cited by Dr. Jang. Mr. Barsky suggested that  
13 absent idiosyncratic definitions you go by the plain  
14 meaning. That is exactly the proposition that was rejected  
15 by Phillips. That was exactly the proposition as cited most  
16 recently before Phillips in the Texas Digital line of cases  
17 which I'll, for example, cite the CCS case in which Dr. Jang  
18 so heavily relied. It was exactly that line of cases that  
19 were expressly repudiated by Phillips.

20 Phillips specifically talks about Texas Digital and  
21 said, no, plain meaning is not the way to go. You look at  
22 the specification. You find out what the inventor meant by  
23 the terms. It's not a situation where you just go to the  
24 dictionary, unless a specification says I didn't really mean  
25 that. You find out in the first instance what they really

1 mean by reading the specification. Couldn't be more clear.

2 This is again from Phillips. "Assigning such a  
3 limited role to the specification" -- and there they're  
4 referring to precisely what Mr. Barsky said in his  
5 presentation, looking for the idiosyncratic, the change in  
6 the definition. "Assigning such a limited role to the  
7 specification, and in particular, requiring that any  
8 definition of claim language in the specification be  
9 expressed is inconsistent with our rulings that the  
10 specification is the single best guide to the meaning of a  
11 disputed term." The single best guide, not the only one we  
12 acknowledge, not the only one this Court should recognize,  
13 but it's the place you start. It's the best place to go to  
14 find out what a term means.

15 One aside, Your Honor, Mr. Barsky put up the last  
16 paragraph of the specification right before the claims,  
17 that's boiler plate language. If you go to any patent  
18 prosecutor, they just pull that up for every patent. There  
19 are specific federal circuit cases that say that that boiler  
20 plate language has no legal effect. That wasn't in their  
21 briefs, but I'd be happy, if it's relevant to the Court, to  
22 supplement briefly after the hearing explaining that that  
23 boiler plate paragraph is of no legal moment.

24 Now, let's talk about comprising. And Mr. Barsky  
25 talked about this at some length as well. We cited cases

1 talking about the role of comprising. And Your Honor's right  
2 that we basically agree with what Dr. Jang is suggesting,  
3 but there's a difference.

4 Let's assume for the moment that I had a claim for  
5 a new gear system on a tricycle. So I said a means of  
6 personal movement comprising a tricycle with a new gear  
7 system, that's my patent. Well, I could add a bell to that  
8 and it would still infringe. I could add new wheels to that  
9 and it would still infringe. But if I add a fourth wheel to  
10 that, I don't infringe, because a tricycle is a tricycle.  
11 Four wheels is not a tricycle. That's exactly what the  
12 cases talk about when they say it's not a weasel word to  
13 abrogate meanings that exist.

14 So you can't take connecting strut or expansion  
15 strut, words with definitions with specific functionality,  
16 and change them and say, well, because it's comprising it's  
17 okay. If you change the meaning of a term, you're not within  
18 what Phillips tells you you can do.

19 Now, let's talk about the disputed terms of the  
20 Jang patents. As I suggested, the central problem for this  
21 Court, the central issue to be resolved, is how do we define  
22 connecting strut and expansion strut or connecting strut  
23 column and expansion strut column such that they have  
24 distinct meanings, such that the jury will understand what  
25 the terms mean and why they are different. That's the



1 central task for us today. We need to arrive at a  
2 construction that recognizes the different roles for  
3 connecting struts and expansion struts.

4 Now, for a connecting strut and connecting strut  
5 columns they have specific purposes. A connecting strut  
6 column connects adjacent expansion columns. It doesn't  
7 itself act as an expansion column. If it acted as an  
8 expansion column, it wouldn't be a connecting strut, it would  
9 be an expansion strut.

10 If they are attached, if connecting struts are  
11 attached to each other, they cease being connecting struts.  
12 They then become expansion struts. It's a matter of simple  
13 physics because then they are radially compressive rather  
14 than allowing longitudinal stretching.

15 Then the question is on columns whether an  
16 expansion strut column can contain a connecting strut column  
17 and vice versa. And we'll talk about that at some length.

18 Connecting strut, that term was well-known, is  
19 well-known in the art. What Dr. Jang tells you is a  
20 connecting strut is a strut that connects. That is not the  
21 definition of connecting strut. That is not sufficient to  
22 define what those who make and use stents understand a  
23 connecting strut to be. And those in the prior art and in  
24 the patent office know what a connecting strut and a  
25 connecting strut meant.

1           If you look, Your Honor, on the right-hand side of  
2 your screen, that doodling of that key is the patent examiner  
3 during the prosecution of the Jang patents. And you notice  
4 that the patent examiner wrote "key, expansion strut, joining  
5 strut, connecting strut," et cetera, and applied it to the  
6 Pinchasik prior art reference. The patent office understood  
7 what those terms meant, what they required, and properly  
8 applied them when reviewing the Jang application in light of  
9 the prior art.

10           Now, here must be the most fundamental failure in  
11 our briefing, because I don't think Dr. Jang understands what  
12 our point is at all with regard to this prior art.  
13 Mr. Barsky said that we are to presume that the patent  
14 examiner knew what he or she was doing. And that is exactly  
15 right. And our position is that the patent examiner did know  
16 exactly what he or she was doing, that they knew what a  
17 connecting strut was, they knew what an expansion strut was;  
18 and therefore, in light of what those terms meant, what we  
19 propose them to mean, then Jang could be patented over the  
20 prior art.

21           It is Mr. Barsky that requires an ignorant patent  
22 examiner, because only an ignorant patent examiner not  
23 knowing what connecting strut is would have allowed that  
24 definition, would have allowed those claims with Dr. Jang's  
25 proposed construction to be allowed over the prior art.

1           In other words, what we say is the only way that  
2           this prosecution history makes sense, the only way you could  
3           understand why a smart, sane patent examiner would allow Jang  
4           over the prior art would be if the examiner knew the terms  
5           meant what we say, and for that matter what Dr. Jang in the  
6           specification says the terms mean. If they mean what  
7           Mr. Barsky suggests they meant, then only a malfeasant patent  
8           examiner would have allowed these claims, for reasons we  
9           explain in the brief, and I'll go over here.

10           We talked about Dr. Squire. He also knows what  
11           connecting strut and connecting meant. So let's move on to  
12           the specification. So we know that the prior art and the  
13           patent office and Dr. Squire all know what the terms mean.  
14           So, too, does Dr. Jang. And that's reflected in his  
15           specification.

16           The specification shows that connecting struts  
17           connect adjacent columns. The specification shows that  
18           connecting struts and connecting strut columns are not  
19           attached to each other. And the specification shows that the  
20           connecting strut column does not contain expansion struts.  
21           Not one embodiment, not some embodiments, not even just all  
22           embodiments, the specification in its entirety. There is no  
23           suggestion that there is any divergence from these  
24           principles, none, not a single hint, not a whisper, not a  
25           shadow, that the terms mean anything different than what

1 Boston Scientific suggests they mean, what the examiner  
2 understood them to mean, and what was meant in the art.

3 So what are the assertions today? Connecting  
4 struts need not attach adjacent expansion columns. What is  
5 the support for that? There is none. There is no citation  
6 to anything in the patent that suggests that that's okay.  
7 There is no extrinsic evidence that suggests that's okay.  
8 There is no testimony of any kind.

9 Next, connecting struts may be attached to each  
10 other. Where is the evidence that it's okay for connecting  
11 struts to be attached to each other? Again, there is none.  
12 And this is a little verbal sleight of hand that was pulled  
13 off this morning. The definition of connecting strut, it was  
14 flashed on the screen. But one would have thought after  
15 Dr. Jang filed a motion to exclude our expert as being too  
16 conclusory, that if they were going to put up a definition,  
17 they'd at least have a basis for it.

18 What was the support for their definition of  
19 connecting strut? Where was the citation to the  
20 specification or, for that matter, where was the claim  
21 language that says a connecting strut is? It's entirely  
22 conclusory. In fact, if you read their opening brief, what  
23 they say is a connecting strut is a strut that connects.  
24 Well, that's not enough if you're one of skill in the art.  
25 That's not enough. That is an insufficient and, in fact,

1 inaccurate definition if you're one that is practiced in  
2 designing and manufacturing stents.

3 In short, Mr. Barsky says we need to rely on the  
4 plain meaning of connecting strut. The problem is there is  
5 no plain meaning of connecting strut. There is only a  
6 meaning to those in the industry, to those in the art, and  
7 that's reflected in every patent we've talked about including  
8 the Jang patents.

9 Finally, they say connecting strut columns may  
10 contain expansion struts. The support for that, again, there  
11 is none.

12 This is the basic geometry. The only way  
13 connecting strut columns appear, straightforward, let's go  
14 put the two quotes. Interesting that the descriptions of  
15 this specifically say that the connecting struts tie adjacent  
16 expansion columns. And Mr. Barsky corrected us and said  
17 that, well, it's not that they connect expansion strut  
18 columns, it's that they connect expansion strut pairs. I  
19 agree with Mr. Barsky, it's not terribly important for any  
20 infringement analysis but, in fact, Dr. Jang himself said, if  
21 you look on the right-hand side, connecting struts 38 connect  
22 adjacent expansion columns. That is exactly our construction  
23 of connecting struts.

24 Now, this is pretty important. Can we put up the  
25 patent claim one of the '021 patent? Pardon the

1 highlighting, Your Honor. It was for a different purpose.

2 Mr. Barsky made the argument that the patentee knew  
3 how to say adjacent when he meant adjacent and he didn't put  
4 adjacent when talking about connecting struts. Actually, he  
5 didn't put adjacent. He was much more clear. If you look at  
6 the third limitation beginning, "A first connecting strut..."  
7 It says, "A first connecting strut including the first  
8 connecting strut proximal section, first connecting strut  
9 distal section and the first connecting strut intermediate  
10 section, the first connecting strut proximal section" -- this  
11 is important -- "being coupled to the distal end of the first  
12 expansion strut pair and the first expansion column and the  
13 first connecting strut distal section being coupled to the  
14 proximal end of the second expansion strut pair of the second  
15 expansion column." That's a long way of saying that the  
16 connecting strut connects column one and column two.  
17 Exactly. They're adjacent. It doesn't say column one and  
18 column three or column one and column five. So we've  
19 summarized that by using the term "adjacent" which happens to  
20 also be consistent with the definition of connecting strut in  
21 the art.

22 As I was suggesting, if we can go to the next  
23 slide, there are no situations, no embodiments, no discussion  
24 in the Jang patent --

25 THE COURT: Could you go back to that last line?

1 MR. WOLF: Sure.

2 THE COURT: If it's too difficult, that's fine.  
3 I'm sorry, the one before that.

4 MR. NILSSON: You mean the claim one?

5 MR. WOLF: Which one would you like, Your Honor?

6 THE COURT: It was the one before this.

7 MR. WOLF: That one?

8 THE COURT: It was this one, I'm sorry.

9 MR. WOLF: So here you have, Your Honor, the two  
10 different references to the adjacency of the expansion  
11 columns that are connected just as there is a reference in  
12 the claim itself to connecting a first and a second, the  
13 first and the second expansion columns.

14 Your Honor, here we have every embodiment in the  
15 Jang patents. And you see in every one the connecting struts  
16 connect adjacent expansion columns. There are no  
17 alternatives.

18 Now, we've talked about case law and what effect  
19 Phillips has and the Nystrom v. Trex case is probably the  
20 best case study. Prior to Phillips there were competing  
21 doctrines. On the one hand you had a series of federal  
22 circuit judges or a collection of them that believe very  
23 strongly in the dictionary plain meaning based approach. And  
24 then you had another set of federal circuit judges that said,  
25 no, you've got to turn to the specification, you've got to

1 read clearly and understand what the patentee meant in light  
2 of the specification.

3 The first Nystrom v. Trex case was resolved by a  
4 panel, two of whom belonged to that first camp. So the  
5 question was -- and Trex is the decking that looks like wood  
6 but it isn't really wood. It's kind of made of chewed up  
7 tires. And the question was, when a claim said board, would  
8 it include boards made of something other than wood. And the  
9 defendant in that case said, no, when you said board in your  
10 claim, you meant board as in wood. And I suppose there's a  
11 fair argument both ways just looking in the abstract, because  
12 board usually means wood, but I've certainly used board to  
13 mean something other than made of wood.

14 And what the federal circuit said in  
15 Nystrom v. Trex one was, yeah, we're not going to hold you  
16 to what the specification says. The specification only  
17 discusses boards made of wood but board could mean boards  
18 made of something else, so we're going to give you the  
19 broader definition.

20 Along comes Phillips and Nystrom v. Trex is reheard  
21 in light of Phillips. And what the federal circuit said is,  
22 Nystrom in light of Phillips, because you only talked about  
23 boards in the specification being made of wood, we're going  
24 to limit you because that was your invention.

25 Here we have an even more extreme case, because



1    whereas in Nystrom you had in the real world boards made of  
2    wood and non-wood and the Court said, well, the specification  
3    makes clear you were only referring to wood. In our case  
4    there's only one kind of connecting strut. And if you ask  
5    any inventor, any participant in the industry, there's only  
6    one kind of connecting strut.

7           What Dr. Jang wants you to do is close your eyes to  
8    the fact that connecting strut means something and break it  
9    apart, just make it a strut that connects, and that's not  
10   what it would mean, any more than to a baseball player the  
11   term "home run" means you go to your house. We know what the  
12   term means. If we didn't know or if there were any ambiguity  
13   as to what connecting strut, connecting strut column,  
14   expansion strut, expansion strut column meant, we have other  
15   claim construction doctrines to fall back on. And two I want  
16   to talk about specifically.

17           The first is, if you've an ambiguity, if you're  
18   uncertain how you want to go, you want to make sure you don't  
19   read claims together, a claim such that one word and another  
20   word mean the same thing or the line between the terms is  
21   unclear. You want to make sure that an expansion strut  
22   column and a connecting strut column are not one in the same  
23   or are not overlapping.

24           Well, Dr. Jang's claim construction would render  
25   the claim term differences meaningless. If you look on the

1 screen right now, Your Honor, this is the understanding of  
2 the Jang patent we all have, both defendant and plaintiff,  
3 that in red you have expansion strut columns and in blue you  
4 have connecting columns. There's no dispute on either side  
5 that that's at least one way to read this patent.

6 The problem is, under Dr. Jang's reading you could  
7 just as easily look at it this way. Now you have what was  
8 indisputably a minute ago an expansion column, at least part  
9 of an expansion column, as you can see right under the number  
10 24. Now you have it part of a connecting strut and part of a  
11 connecting strut column. There's nothing in Dr. Jang's  
12 proposed construction that precludes this reading of his own  
13 invention. We don't agree with that reading, but if you do  
14 adopt that, then we see that as to column 24 there's no way  
15 to distinguish under the definition what is a connecting  
16 strut or an expansion strut. There's just no end to this  
17 mischief.

18 In fact, there's nothing in Dr. Jang's patent that  
19 precludes this. There's nothing that precludes having one  
20 expansion strut on the far left side, to use their  
21 terminology, connecting by a very long connecting strut to  
22 the far right. That's perfectly consistent with the  
23 construction.

24 THE COURT: And is that just because of the lack of  
25 the term "adjacent"?

1 MR. WOLF: That's correct, Your Honor. That's  
2 correct. And also -- well, it's interlocking of adjacent and  
3 also solely. I mean because those are related terms,  
4 obviously. If it's adjacent then we know that it has to  
5 connect the next line over which on this graph is under 24.

6 This problem is compounded not just on the strut  
7 level but on the column level as well. Let's suppose for a  
8 moment that under Dr. Jang's construction you have a column  
9 that has four expansion struts and two connecting struts.  
10 But what is that? Is that an expansion column or a  
11 connecting column or neither or both? Who knows? There's no  
12 way to distinguish if you don't use the word "solely" what is  
13 a connecting strut column from an expansion strut column.

14 And as we've shown, the patent only discloses  
15 throughout its entire specification in every embodiment, only  
16 has connecting strut columns made up entirely of connecting  
17 struts and expansion strut columns made up entirely of  
18 connecting struts.

19 Now, Dr. Jang asked you in his opening brief to  
20 look at the Express stent. It is our view that is not  
21 appropriate at this phase of the proceedings, but  
22 nonetheless, it is instructive to accept the invitation.

23 Here is the Express stent as any unbiased observer  
24 would see it. In red you have the expansion strut and in  
25 blue you have the connecting strut. Dr. Jang has created a

1 new definition. You see what he's done is he has taken metal  
2 out of what was an expansion strut. He's erased it,  
3 literally taken White-Out and put over what was indisputably  
4 an expansion strut and now made it part of a connecting  
5 strut. This is the mischief that happens.

6 And it gets worse, because you see that exactly the  
7 same shape performing exactly the same function, expansion  
8 strut pairs, are under Dr. Jang's reading as laid out quite  
9 clearly in his opening brief, on the one hand, the  
10 intermediate sinusoidal section of a connecting strut, and on  
11 the other, two joined expansion strut pairs. How can that  
12 be? How can a claim construction be acceptable if the result  
13 is that two identical structures performing identical  
14 functions have entirely different definitions?

15 In fact, we could flip it and you can see there's  
16 nothing wrong under Dr. Jang's definition by having what is,  
17 again, undisputably by Dr. Jang, an expansion strut now  
18 performing as a connecting strut.

19 This is the architecture of the Express stent  
20 without the connecting struts. You have a major and a minor  
21 expansion strut that gives the strut more flexibility. These  
22 expansion struts that alternate major, minor, major, minor,  
23 are expansion struts. There is no doubt. You then take  
24 these expansion struts, add connecting columns, and you've  
25 got the Express stent.

1           Now, what's interesting is that Dr. Jang himself  
2 contemplated the notion of using different size expansion  
3 strut pairs, different size expansion strut columns. Let's  
4 go to figure 6A from his patent. If you look, Your Honor,  
5 figure 6A, which you see on your screen, is one of the  
6 embodiments in Jang's patent. On the left-hand side you can  
7 see that those struts, those expansion struts under the  
8 No. 86, are much thicker than those under 24. That was  
9 intentional.

10           THE COURT: Is that just a function of where it's  
11 cut off?

12           MR. WOLF: No, Your Honor. In fact, I can read to  
13 you from the specification, but I'll just --

14           THE COURT: When you say "thicker," what do you  
15 mean by "thicker"? You mean the -- what I would say meaning  
16 it's wider?

17           MR. WOLF: Yeah. It's a different gauge of metal,  
18 so one is -- so if you look at the top of -- you see the  
19 expansion strut column 86?

20           THE COURT: Right.

21           MR. WOLF: And just look at the top expansion  
22 strut. It has a certain thickness.

23           THE COURT: Oh, I see.

24           MR. WOLF: And then you go over to 24 and that's  
25 about half the size, half the thickness.

1 THE COURT: All right.

2 MR. WOLF: And Dr. Jang identified this as having  
3 potential advantages alternating. And I believe that it went  
4 A, B, B, B, A, B, B, B in repeating patterns as the way he  
5 disclosed it. What's critical about this -- and this is all  
6 at column 10, lines 46 through column 11, line 17 -- is that  
7 he referred to both column 86 and column 24 as expansion  
8 strut columns.

9 So the fact that we have different size expansion  
10 strut columns -- ours go A, B, A, B rather than A, B, B, B,  
11 A, et cetera. The fact that they are of different size is of  
12 no moment to Dr. Jang. In his specification he makes it  
13 quite clear. If it serves the role of an expansion strut,  
14 it's an expansion strut.

15 Now, I said there were two reasons why if there was  
16 any ambiguity Dr. Jang's claim construction should be  
17 rejected. The first is that it blurs the distinction between  
18 expansion struts and connecting struts.

19 The second is that if accepted it would threaten  
20 the claim validity. Why do we say that? Well, let's show  
21 this. We have here Boston Scientific's Express stent. You  
22 can see the alternating large and small expansion columns  
23 joined by straight connectors. We are now going to blow it  
24 up and show that this is substantially the same geometry as  
25 the Lau stent. In fact, our stent is based on the Lau

1 geometry. You can see they are very, very similar  
2 geometries.

3 If it is the case that the Express stent practices  
4 the Jang patent and their construction is correct -- in other  
5 words, we accept what they say about the definitions of  
6 connecting strut column and expansion struts -- then the Lau  
7 stent threatens to be invalidating prior art because it's the  
8 same basic geometry. Our response is, there is no validity  
9 problem here because the patent office understood what the  
10 terms meant, understood that our understanding of the terms  
11 was accurate, Dr. Jang's proposed are not.

12 But, again, the point is, if you accept Dr. Jang's  
13 proposal it risks invalidating the patent. And, of course,  
14 this can't be done. We don't need to belabor it in our  
15 brief. We cite cases that only make sense. If I sell you a  
16 business, Your Honor, the next day I can't turn around and  
17 trash the business to the community. If I sell you a piece  
18 of land, I can't the next day burn down all the trees on that  
19 land. Similarly, I can't sell you a patent and then the next  
20 day argue for a construction that would invalidate what I  
21 sold you for \$60 million. But that's exactly what Dr. Jang  
22 is doing in this case.

23 Why don't we move forward to this one. Another  
24 point of confusion, when we showed the various prior art  
25 stents Dr. Jang said that BSC has wrongly called these

1 expansion pairs part of a connecting strut -- on the  
2 right-hand side you see the Lau stent -- and it says we  
3 ignore this interconnecting element. Missing the point.  
4 We're saying that if you accept Dr. Jang's construction,  
5 there's nothing that precludes that which is on the right.

6 But we don't accept Dr. Jang's construction. In  
7 fact, we think he is absolutely right that the  
8 interconnecting element that he says we ignore is the  
9 connecting strut just as on left-hand side you see the  
10 corollary, albeit it's a little longer, the straight blue  
11 line, not the sinusoidal shape that he has drawn.

12 THE COURT: So all you're saying really is that  
13 you're not ignoring it, you just consider it part of the  
14 connecting strut?

15 MR. WOLF: What we're saying -- let's go back to  
16 our patent, the Express. Your Honor, what we're saying is  
17 that the expansion columns are clear. It is the wavy line.  
18 And what is straight is the connecting strut, part of the  
19 connecting strut column. And he says we're ignoring it.  
20 We're not. We're saying that that's right. That is the  
21 connecting strut. But when you start getting that sinusoidal  
22 shape, you're torturing the claims, you're torturing the  
23 language. That's precisely what we don't want to do. We're  
24 just taking their argument to its logical conclusion. And we  
25 can see, if we go to Pinchasik and Orth, we can see exactly



1 the same thing. If you buy their construction, then it could  
2 read just as easily on any of the other prior art patents.

3 THE COURT: Could you go back?

4 MR. WOLF: Sure. Dr. Jang says the patent office  
5 was fully aware of all but one of the prior art references  
6 discussed by BSC at the time it examined and allowed  
7 Dr. Jang's patent claim to issue. As I've already suggested,  
8 that's precisely right. The patent office was fully aware,  
9 understood what the terms mean, and by applying those terms  
10 found that Dr. Jang's patent was patentable. It would not  
11 have done so had it understood Dr. Jang's claims to mean what  
12 he claims it means.

13 THE COURT: I'm sorry, but could you go again back  
14 one?

15 MR. WOLF: Sure.

16 THE COURT: See, on this one --

17 MR. WOLF: This is the way they actually should be  
18 constructed, Your Honor. So you see in red what we believe  
19 are appropriately called expansion strut columns and in blue  
20 what is appropriately called the connecting strut and the  
21 connecting strut columns. So this slide is showing the way  
22 you should properly read Pinchasik, Orth and Fischell as  
23 opposed to the previous slide which is the way they would be  
24 read if Dr. Jang or could be read if Dr. Jang's construction  
25 were accepted.

1 THE COURT: So, for example, the figure on the far  
2 right --

3 MR. WOLF: Yes.

4 THE COURT: And as it was shown on the previous  
5 slide --

6 MR. WOLF: Let's go back. Yes, under Dr. Jang's  
7 construction --

8 THE COURT: And your point is as to this figure,  
9 again, I would say you're trying to illustrate the need for  
10 the term "adjacent."

11 MR. WOLF: Exactly right, Your Honor. The mischief  
12 that is done if "adjacent" isn't understood as part of the  
13 notion of connecting strut, that you're just allowed to wind  
14 around the stent until you find another expansion column that  
15 would otherwise satisfy.

16 THE COURT: All right.

17 MR. WOLF: Let me leave with this question, Your  
18 Honor. This is the same picture we were just looking at.  
19 And I would ask Mr. Barsky to tell us in his rebuttal why it  
20 is under his construction that this wouldn't constitute  
21 invalidating prior art. Under our construction you wouldn't  
22 get here because you would have to use -- you see we have on  
23 the left the first thing in red is the first expansion strut  
24 pair. And what we would understand is --

25 THE COURT: I'm sorry, I don't understand the

1 question you're asking.

2 MR. WOLF: Sure. Let me take a step backward for a  
3 moment. Remember what I said earlier that what was  
4 innovative about Jang primarily was the offset expansion  
5 strut pairs. By any fair reading and what the patent office  
6 did was looked at this prior art and said, well, these  
7 expansion strut pairs aren't offset.

8 THE COURT: What prior art are we looking at?

9 MR. WOLF: This is Orth -- Fischell, I'm sorry.

10 THE COURT: All right.

11 MR. WOLF: So the patent examiner with the  
12 appropriate reading of -- consistent with our construction  
13 looks at Fischell and says, well, I see expansion columns. I  
14 see the non-parallel connecting column. And then I look at  
15 the adjacent expansion strut column and although they're  
16 connected, they're not offset. So this doesn't invalidate  
17 the Jang patent. By making it offset Jang is different.

18 But if you accept Jang's construction which  
19 eliminates the need for the expansion strut columns to be  
20 adjacent and allows you that circuitous connecting strut  
21 column as opposed to what is traditionally a connecting  
22 strut, well, suddenly, he can draw a picture or, rather, the  
23 patent office could have drawn a picture on the Fischell  
24 stent and said, look, on the left-hand side in what is red  
25 you have an expansion strut pair, on the right-hand side in

1 what's red you have an offset expansion strut pair, and  
2 suddenly what you claim to be novel isn't novel.

3 If you don't have to ask the question are the  
4 adjacent expansion strut pairs offset, if you can drop the  
5 word "adjacent" from the notion of connecting strut from the  
6 notion of this patent, well, then you read on every piece of  
7 prior art that came. You have to read the term. And just  
8 like he did in his description, we showed you the word  
9 "adjacent" up here. We showed you the language in the patent  
10 where it said that the connecting strut connects expansion  
11 column one to expansion column two. In this case it's  
12 showing expansion column one and expansion column three, I  
13 guess would be the way to read it. And once you do that,  
14 you've threatened the validity of the patent.

15 So, Your Honor, we ask you to follow the claim  
16 construction provision set out in Phillips. We ask you to  
17 rely on the specification and the claim language. We ask you  
18 to look at what the prior art taught us and what it didn't  
19 teach us, and to accept the notion that expansion strut  
20 columns must be connected to adjacent expansion strut columns  
21 and that expansion strut columns must contain only expansion  
22 struts and connection strut columns should only contain  
23 connection struts. Thank you.

24 THE COURT: Do you wish to make an argument in  
25 response?

1 MR. BARSKY: Yes. I wonder, though, what the  
2 Court's preference is. I just have a couple of things I want  
3 to get together because there was a lot of new information  
4 that I'm going to want to respond to very directly.

5 THE COURT: That's fine. Why don't you do that  
6 because that will give me time to go through the notes that I  
7 made as I read the briefs and see if there is anything  
8 that --

9 MR. BARSKY: Great. What time would you like to  
10 see us back, Your Honor?

11 THE COURT: How long will it take you because I was  
12 just going to sit here and do it?

13 MR. BARSKY: Oh, okay.

14 THE COURT: Five minutes enough?

15 MR. BARSKY: I can try to do it in five minutes,  
16 sure. Thank you.

17 (Brief recess)

18 THE COURT: I'm ready when you are. I have just  
19 have one question. I think you've addressed everything else.  
20 I think I understand why this was cited, but in the  
21 plaintiff's opening brief you had a short bit of argument  
22 about the Wilson Sporting Goods and Lava Trading cases and  
23 the case law that says that the claims of a patent are to be  
24 construed independently of the accused product, that  
25 principle doesn't really apply here, in my view, because as I

1 stated at the outset, this isn't, at least strictly speaking,  
2 an infringement case. And both sides have discussed and  
3 spent the whole morning really discussing the Express stent.  
4 Although you cited that out of an abundance of caution, I  
5 suppose, I don't think anybody --

6 MR. BARSKY: Exactly.

7 THE COURT: Nobody has any concerns on that issue?

8 MR. WOLF: Correct, Your Honor.

9 MR. BARSKY: Just to clarify, Your Honor, I don't  
10 think I discussed the Express stent at all in my  
11 presentation, but certainly we pointed it out in our papers,  
12 and the reason for it is, Your Honor, this is yet another  
13 example of potentially conflicting signals from the federal  
14 circuit. On the one hand, we have this line of cases, the  
15 SRI International line of cases, that say you don't ever  
16 construe a claim in accordance with or based upon some view  
17 of the accused device.

18 On the other hand, you have these recent federal  
19 circuit cases in which the federal circuit has reversed  
20 district courts on their claim construction and refused to  
21 even enter -- in other words, the federal circuit refused to  
22 even pronounce a claim construction saying we don't have  
23 enough evidence about the accused device. So it's completely  
24 mixed signals. And so just as a matter of caution, we  
25 thought it would be best so that the record at least include

1 what we understand to be the architecture of the Express  
2 stent. And that's the only relevance, in my view.

3 THE COURT: All right. But really what the parties  
4 are asking is not for the Court to make -- well, what the  
5 parties are asking the Court to do is to construe these  
6 claims for a purpose that's different -- somewhat different  
7 than -- not for a purpose, but in a context that's somewhat  
8 different than I would usually hold a Markman hearing.

9 MR. WOLF: That's correct, Your Honor.

10 THE COURT: I don't know that -- I mean, the Court  
11 follows the same principles regardless of the context.

12 MR. BARSKY: Yes.

13 THE COURT: I just don't think this is as much of a  
14 concern because we don't have an allegedly infringing device  
15 here.

16 MR. BARSKY: That's correct, Your Honor.

17 THE COURT: That's why I was a little puzzled even  
18 by the citation because we don't have an allegedly infringing  
19 device.

20 MR. BARSKY: Correct. Although it's not clear the  
21 federal circuit would say that in a case like this where the  
22 issue is coverage under a license agreement or an acquisition  
23 and sale agreement in this case that they would treat that  
24 any differently than a standard infringement case.

25 THE COURT: That's true.

1 MR. BARSKY: We thought it would be best to err on  
2 the side of caution in that regard.

3 THE COURT: Thank you. You may proceed.

4 MR. BARSKY: Thank you very much, Your Honor.

5 Let me address right off the bat the question of  
6 the motivation of the parties. That was I believe one of the  
7 very early issues that Mr. Wolf addressed and it's one that  
8 I'm hoping we can dispose of pretty rapidly.

9 What Mr. Wolf said was that just last month the  
10 district court had affirmed a jury award of infringement  
11 against \$3 billion worth of stents sold by Johnson & Johnson  
12 in favor of Boston Scientific. What Mr. Wolf suggested to  
13 this Court was that they would be the last people on earth  
14 who would ever do anything to threaten the validity of these  
15 patents. And, in fact, they want to preserve the validity of  
16 these patents and interpret them as broadly as can fairly be  
17 interpreted because that's what's in their interest.

18 Well, Your Honor, I submit that that is not correct  
19 and it's not sincere. And the reason is because at issue in  
20 the Johnson & Johnson litigation -- and, Mr. Wolf, correct me  
21 if I'm wrong -- are none of the claims that are at issue in  
22 this case. The only issue, as I understand it, in the J&J  
23 litigation in front of Judge Robinson is what I understand to  
24 be -- I think it's claim 37 of the '021 patent and that's it,  
25 not claim one, not any of the claims that depend from claim



1 one.

2 THE COURT: I think if I remember correctly, and  
3 I'm sure someone will point out to me if I've got this wrong,  
4 I think that the defense brief admitted that none of the same  
5 claims are involved.

6 MR. BARSKY: I was responding to the --

7 THE COURT: I think the defense admitted in their  
8 briefs that none of the same claims are involved in the case  
9 before Judge Robinson.

10 MR. BARSKY: That may be true, Your Honor. I was  
11 referring solely to the suggestion that somehow Boston  
12 Scientific approaches this whole process reluctantly because,  
13 by golly, they want as broad a claim construction as could  
14 possibly be legitimate without effecting the validity of  
15 their claims. What I'm suggesting is that to hook in the  
16 Cortis litigation, the J&J litigation, and suggest that that  
17 somehow is constraining them is wrong. And it is wrong  
18 because none of those claims are at issue.

19 And in this case Boston Scientific would like  
20 nothing more than to invalidate claim one. They have 100  
21 million reasons or more that would motivate them to do so.  
22 And if they don't get the claim construction that they want  
23 in this case and get these extraneous limitations read into  
24 these claims, they will be in here urging that these are  
25 invalid claims and that they only owe money, if at all, on

1 valid claims. And so hopefully we can just -- put this to  
2 the side. I'm sorry, Your Honor, go ahead.

3 THE COURT: Excuse me. Under the terms of the  
4 contract they don't owe anything under the contract so long  
5 as nothing is manufactured that's within the terms of the  
6 patent, right?

7 MR. BARSKY: That's true. But there's another  
8 provision in that contract, Your Honor, and that talks about  
9 royalties being payable on valid claims.

10 THE COURT: Correct.

11 MR. BARSKY: And so what Boston Scientific is  
12 positioning themselves for here is to argue down the road  
13 that these claims are invalid, that they've been construed --

14 THE COURT: Has that been raised as an affirmative  
15 defense?

16 MR. BARSKY: Has it been raised as --

17 THE COURT: Has it been raised as an affirmative  
18 defense?

19 MR. BARSKY: I don't believe they have ever  
20 articulated that as an affirmative defense, but neither am I  
21 sure that they would have had to in light of the fact that  
22 there is not an infringement claim, per se, that is being  
23 made in the case; in other words, that there are claims that  
24 are being made of coverage, so they have never articulated  
25 that.

1 But they did do the following, Your Honor: We  
2 asked them in a request for admission to admit that claim one  
3 of the '021 patent and the '743 patent are valid. And they  
4 came back and they said, as we understand -- and I'm going to  
5 paraphrase. As we understand the construction of claim one  
6 it is valid. They did not or were unwilling to give an  
7 unequivocal endorsement of a validity of claim one, and  
8 that's because they're holding that as their trump card later  
9 on so that they can argue if they don't get the construction  
10 that they want, I guarantee, Your Honor, they will be in here  
11 arguing that claim one is invalid.

12 So I raise that only because I think it would be  
13 helpful to this proceeding to put aside this artifice that  
14 somehow Boston Scientific is in here altruistically advancing  
15 claim constructions, potentially even inconsistent with their  
16 multi-billion-dollar verdict in the J&J case. It's just not  
17 true. And it also demeans Dr. Jang's position in this  
18 litigation.

19 Dr. Jang is seeking the rescission of these  
20 patents, among other remedies. He has offered, he has  
21 tendered --

22 THE COURT: You mean the assignment of the patents?

23 MR. BARSKY: Correct.

24 THE COURT: He is not seeking -- you said the  
25 rescission of the patents.

1 MR. BARSKY: I'm sorry. If I said that, I  
2 misspoke, Your Honor.

3 THE COURT: You mean the assignment?

4 MR. BARSKY: Yes. I most definitely misspoke if I  
5 said that.

6 He is seeking to rescind his assignment of the  
7 patents, among other remedies. He has offered to Boston  
8 Scientific, tendered under California law, the consideration  
9 that he received from Boston Scientific for these patents.  
10 So the last thing Dr. Jang would want is to see any of these  
11 patents invalidated.

12 So maybe with that quick comment on the respect of  
13 motivations of the parties, I can turn to some of the other  
14 things that were sounded by Boston Scientific's counsel in  
15 their presentation.

16 One of the things I heard over and over and over  
17 again during Mr. Wolf's presentation is about what everybody  
18 knew, what people of ordinary skill in the art knew, what the  
19 patent office knew, what the patent examiner knew, what  
20 Dr. Jang knew. Never did Boston Scientific point this Court  
21 to anything in any of these patents -- and I'm referring now  
22 to the prior art patents -- and talk about how those prior  
23 art patents make it clear that persons of skill in the art  
24 understood that a connecting strut was this and an expansion  
25 strut was that and a column was this and other elements were

1 that. It didn't do that.

2 What Mr. Wolf did was he stood up here and without  
3 any evidence whatsoever and without pointing to anything in  
4 the prior art, he just simply pronounced, like Dr. Squire  
5 pronounced, only this time it's not in the form of a  
6 declaration from an expert, it's just from Boston  
7 Scientific's lawyer. He just pronounced the patent office  
8 knew what a connecting strut was. The patent office knew  
9 what an expansion strut was. They knew that the expansion  
10 columns had to be adjacent. That's the only reason why the  
11 claim doesn't say that, Your Honor. That's the position that  
12 they're advancing.

13 And then they actually seek to turn to our side of  
14 the table and say, where is Barsky's proof that these  
15 expansion columns don't have to be adjacent? Where is  
16 Barsky's proof that these aren't legitimate limitations on  
17 these claims?

18 Well, we were scrupulous, Your Honor, in parsing  
19 the language of these claims starting with that language and  
20 finding what the restrictions and what the limitations are in  
21 the claims. It is not our burden to come to this Court and  
22 prove that some extraneous limitation is not a part of the  
23 claim. It's Boston Scientific's burden because they are the  
24 party that is coming in here saying this Court should say  
25 that the connecting struts only connect adjacent expansion

1 columns, and this Court should say connecting struts should  
2 be unattached to each other. It is their burden to prove  
3 that that is an appropriate limitation to find somewhere in  
4 this claim language. That they have not done and it is  
5 inappropriate to turn to us and suggest that somehow we  
6 should have to disprove that that limitation shouldn't be  
7 included or shouldn't be read into the claim language. So  
8 that was a common theme that we heard, Your Honor.

9 And let me just give an example of why this whole  
10 issue on adjacency is an unfortunate one. And it's because  
11 we understand from Dr. Squire, to the extent the Court wants  
12 to look at his declaration, but we understand from  
13 Dr. Squire, for example, well, everybody knew that the  
14 expansion columns would have to be adjacent to each other.  
15 Presumably had he taken the stand here today, and I'm sorry  
16 that he didn't, but had he taken the stand here today, he  
17 would have said it would have been obvious. It would have  
18 been obvious that they had to be adjacent. Presumably that  
19 is Boston Scientific's position. It would have been  
20 superfluous to put that kind of language, the requirement of  
21 adjacency, in the claim.

22 Well, we went back and looked, for example, at some  
23 of the prior art that Boston Scientific is relying on that  
24 they say makes it so clear that adjacency is required in the  
25 patents of Dr. Jang. And I see that the smaller monitors are

1 on the blink, Your Honor. One of the things that we found,  
2 Your Honor -- sorry, Your Honor. Excuse me one second,  
3 please.

4 Thank you, Your Honor. One of the things that we  
5 found, Your Honor, is we went back to Lau, Pinchasik and  
6 Palmaz and we found that every single claim in all three of  
7 those patents specifically recite adjacency of the expansion  
8 members in the claim. Every single claim. And I'm going to  
9 run through just the independent claims now, Your Honor, and  
10 I'll provide these sites to the Court after today's hearing.  
11 In fact, I can provide a spiral book of all of the slides.  
12 That may be helpful --

13 THE COURT: That would be.

14 MR. BARSKY: -- to the Court.

15 But all of the independent claims of Lau -- and, by  
16 the way, if the Court wants to consult any of these, these  
17 are attached to the Nilsson declaration. The Lau patent is  
18 attached as Exhibit H. And every single one of the  
19 independent claims in the Lau patent recite this requirement  
20 of adjacency. Same thing with Pinchasik, if the Court looks  
21 at Exhibit E to Mr. Nilsson's declaration they --

22 THE COURT: So really -- are you really arguing  
23 that -- and maybe this is taking it further than you intend  
24 to, which is why I'm asking. But are you really arguing that  
25 the omission of "adjacent" is what's necessary to avoid

1 reading of the prior art?

2 MR. BARSKY: Am I arguing that the omission of  
3 "adjacent" --

4 THE COURT: In other words, you're arguing that the  
5 omission of the term "adjacent" --

6 MR. BARSKY: In the Jang patents.

7 THE COURT: -- is deliberate?

8 MR. BARSKY: Yes, that it distinguishes it from the  
9 prior art.

10 THE COURT: That was my question.

11 MR. BARSKY: That was why I was hoping that  
12 Dr. Squire would take the stand and explain why it is. If  
13 everybody understands that these expansion members have to be  
14 adjacent to each other, why is it that in every one of these  
15 claims, in Pinchasik and Palmaz, there's a specific reference  
16 to the connecting struts or whatever the connecting members  
17 may be or the tubular members being adjacent to each other?  
18 In every single one of those independent claims it explicitly  
19 requires adjacency.

20 THE COURT: Are you saying that is not required in  
21 Dr. Jang's?

22 MR. BARSKY: Absolutely. Except where the patent  
23 claim says that something has to be adjacent, which are the  
24 expansion struts. I'm sorry, Your Honor, I didn't mean --

25 THE COURT: No, go ahead.



1 MR. BARSKY: And so there's that anomaly in the  
2 position that Boston Scientific is advancing; namely, that  
3 they keep telling this Court what everybody knew, but there's  
4 no evidence of it. They don't point to anything in the prior  
5 art. And, in fact, in the prior art it makes it clear that  
6 it was far from superfluous. So to the extent that the Court  
7 needs to refer to the prior art, and I personally don't think  
8 it does in order to construe these claims, but Boston  
9 Scientific is pushing the Court's reliance upon what was in  
10 the prior art as guiding its interpretation of these claims.  
11 And if that invitation is accepted, then among the things the  
12 Court should consider is that it's Dr. Jang's patent that  
13 does not require or does not explicitly recite this  
14 requirement of adjacency.

15 THE COURT: Then how do you deal with the  
16 problem -- I shouldn't say problem. How do you deal with the  
17 issue that the other side brought up in the form of the slide  
18 that shows the extreme --

19 MR. BARSKY: I'm glad you asked that question, Your  
20 Honor.

21 THE COURT: You know which slide I'm talking about?

22 MR. BARSKY: Absolutely. It's the absurdest  
23 interpretation of our claim.

24 THE COURT: You say "absurd," I say "extreme," but  
25 you know which one I'm talking about.

1 MR. BARSKY: I think we're speaking the same  
2 language, Your Honor. I know exactly what the Court is  
3 referring to. It's that meandering blue line across the  
4 length of the stent. Why isn't that within the scope of our  
5 claims? And this is actually the second point I wanted to  
6 move to, which is that the lack of a requirement of adjacency  
7 of the expansion columns does not mean that anything can be a  
8 connecting strut. It still has to be a connecting strut. It  
9 has to meet the definition that's provided by the claim  
10 language. Mr. Wolf said, when did Barsky ever tell the Court  
11 where a connecting strut is defined in the claims -- excuse  
12 me -- where it's defined in the patent?

13 I would suggest, Your Honor, we pointed to the  
14 exact language that describes a connecting strut in  
15 Dr. Jang's patent. And it talks about it being coupled to  
16 the distal end, the distal end of an expansion strut pair in  
17 one column and the proximal end of an expansion strut pair in  
18 another column. That's what gave rise to the exact  
19 definition that we've offered to this Court. It is a strut  
20 that connects expansion pairs.

21 Now, the question from the Court and suggested by  
22 Boston Scientific is, well, why couldn't that meandering line  
23 in the Fischell patent or in the Lau patent or even on the  
24 Dr. Jang stent itself, why can't that meet the claim  
25 limitations? And the answer is because something that Boston

1 Scientific has harped on from the very beginning, and rightly  
2 so, which is that patents must be construed not only in light  
3 of this federal -- the claims must be construed not only in  
4 light of the specification but from the vantage point of  
5 someone of skill in the art at the time the invention was  
6 made.

7           So if Boston Scientific is going to suggest to this  
8 Court that that meandering blue line in Fischell or Orth or  
9 Lau can constitute a connecting strut, what they're really  
10 saying is that a person of ordinary skill in the art looking  
11 at this structure would say, yes, that could fairly be a  
12 connecting strut.

13           Now, Mr. Wolf says we don't think it is. We don't  
14 think it's a connecting strut. We don't think that's the  
15 proper interpretation, but under the plaintiff's proposed  
16 interpretation that would be permissible. Well, it wouldn't  
17 be, Your Honor, because the question still has to be, is it  
18 or is it not a connecting strut within the meaning of the  
19 Jang patents. They haven't tendered any evidence to the  
20 Court. Dr. Squire, the otherwise agreeable Dr. Squire,  
21 didn't even put in his conclusory declaration a conclusory  
22 statement about how a person of ordinary skill in the art  
23 reading the Jang patents and having the Court's claim  
24 construction, which adopts the plaintiff's point of view on  
25 what a connecting strut is, would look at that meandering

1 blue line and, yes, that would be considered a connecting  
2 strut.

3 The reason I said it was absurdest, Your Honor, was  
4 not to be pointed in my comments from Boston Scientific's  
5 counsel. That was not my intention. It's just an absurdest  
6 proposition, however, that a person of skill in the art would  
7 ever look at it that way.

8 Now, Mr. Wolf will say, well, if you can do that  
9 with the Express stent, why can't you do that with Lau and  
10 Pinchasik and Orth and Fischell and so on? And the answer  
11 is, Your Honor, that's an infringement issue. That's a  
12 separate issue. And just as the Court said earlier, we don't  
13 have that issue in this case. And the Court's caveat in the  
14 SRI International line of cases about not construing claims  
15 in light of the accused device, that's an infringement  
16 issue.

17 And we'll prove at the time of trial, Your Honor,  
18 that the Express stent does not rely upon the Lau geometry.  
19 In fact, nothing can be further from the truth. In fact, it  
20 relies very much so in all of its functional characteristics  
21 and in its geometry on the innovation of Dr. Jang's patents.  
22 Presumably that's a good reason for spending the kind of  
23 money Boston Scientific spent in order to acquire that  
24 technology.

25 So that is an issue for trial, it's an issue of

1 infringement, and presumably at some future point if Boston  
2 Scientific doesn't get the claim construction that they think  
3 is required, it will be an issue for their invalidity motion  
4 as well. Because much of what we've been talking about  
5 today, Your Honor, is a proxy for their non-infringement  
6 position or a proxy for the invalidity arguments we're going  
7 to hear later in this case.

8 THE COURT: All right. Thank you.

9 MR. BARSKY: Just a couple other points, Your  
10 Honor, if I can impose on the Court.

11 The last point I would just make is a simple one.  
12 It's the comprising issue. We understand, Your Honor, that  
13 once you add a fourth wheel to a tricycle, it's no longer a  
14 tricycle. And if the tricycle is required by the claim you  
15 can't get out of it by saying, well, it's a comprising claim;  
16 therefore, three wheels, four wheels, what's the difference.  
17 Well, the difference is once you add that fourth wheel it is  
18 no longer a tricycle.

19 What you didn't hear from Boston Scientific was any  
20 response to any of the arguments that we made in our  
21 supplemental brief, Your Honor, with respect to the notion of  
22 adding something to an expansion column or a connecting strut  
23 column. All Mr. Wolf said and all Boston Scientific said in  
24 its briefs was that -- was as Dr. Squire I presume would have  
25 said had he testified, that, you know, once you add anything

1 to a connecting strut column, it's not a connecting strut  
2 column anymore. Now it's an expansion column. Or once you  
3 add something to an expansion column, it's not an expansion  
4 column anymore. Where is that? Where does it say that in  
5 the patents, in the prior art, even in any extrinsic evidence  
6 that this Court can look to? Where is it that the Court can  
7 look other than a legal brief signed by Boston Scientific's  
8 counsel to support that proposition?

9 THE COURT: Their response would be, where would  
10 the Court have to look to know that something with four  
11 wheels is no longer a tricycle?

12 MR. BARSKY: Well, one answer would be, I suppose,  
13 that a tricycle by definition has three wheels and that if  
14 it's got four wheels it's a quadracycle.

15 I guess the point that I'm trying to make, Your  
16 Honor, is that their position is that they could take  
17 Dr. Jang's invention, and by that I mean one of the preferred  
18 embodiments, right out of this patent and they could add  
19 something to it, for example, a radiopaque marker. This is  
20 something we raised in our supplemental brief, the fact that  
21 the patent talks about how if the cardiologist is able to see  
22 the stent as it's threaded through the vasculature, it  
23 enables the safe and appropriate placement of that stent in  
24 the effected artery.

25 Well, the patent talks about the use of radiopaque

1 markers and even has patent claims that go to such radiopaque  
2 markers. Some of them are plated, some of them are  
3 non-plated. But what if one of those little radiopaque  
4 markers, just a little dot of gold supported by a strut  
5 somehow, was placed in the preferred embodiment of Dr. Jang's  
6 patent?

7 Boston Scientific says it's no longer an expansion  
8 column, if it's an expansion column, or it's no longer a  
9 connecting strut column because you've added something to it.  
10 You've put something in there that deprives it of being a  
11 connecting strut column in the same way that adding a fourth  
12 wheel to a tricycle deprives it of being classified as a  
13 tricycle. The difference is that everybody knows that a  
14 tricycle only has three wheels.

15 With respect to the connecting strut and connecting  
16 strut columns and expansion columns, they say everybody knows  
17 that it only has expansion struts or expansion strut pairs or  
18 connecting struts. They don't point to anything that says  
19 that. There's no evidence before the Court to suggest that.  
20 And so there's no basis on which this Court could read that  
21 limitation into the claims, and it would be reading that  
22 limitation into the claims.

23 Finally, Your Honor, I want to suggest that  
24 Phillips does not in any way change the calculus that this  
25 Court applies in looking at the question of whether or not,

1 for example, a disclosure of a single embodiment in a patent  
2 can give rise to a suggestion that the claims are limited to  
3 that embodiment. Phillips rejects that proposition.

4 THE COURT: It does. I agree with you on that.

5 MR. BARSKY: There's no way one could read Phillips  
6 to suggest that descriptions in the specification limit the  
7 claims. Phillips clearly says they do not. So maybe there  
8 was a "see change" in some respects after Phillips, but it's  
9 limited to the use of dictionaries. It's limited to the fact  
10 that Phillips looked at the Texas Digital case and said,  
11 huh-uh, we've got too many district courts running to  
12 dictionaries first and then going to the claims and  
13 interpreting what the claims --

14 THE COURT: I've burned all my dictionaries.

15 MR. BARSKY: Okay. So I won't belabor the point  
16 further. I'll simply say that the approach that we've  
17 outlined is the approach that is endorsed by Phillips. And  
18 we thank the Court very much for its patience and attention.

19 THE COURT: Do you wish to respond briefly?

20 MR. WOLF: Very briefly, Your Honor.

21 A couple notions. First, on the issue of the  
22 accusation of insincerity, I would note that it was counsel  
23 for plaintiff that put up the testimony and the statements  
24 from the J&J case and said that they bear on this case, and  
25 it's the reciprocal of that that motivates us to make sure



1 that we come up with the fairest valid construction of this  
2 patent. And it is, of course, not just one case but all the  
3 future cases that we might assert the claims at issue here.  
4 We want to ensure that they are valid broad claims, not  
5 invalid ones.

6 A couple notions, and I don't want to belabor what  
7 is relatively well briefed, but one issue, Mr. Barsky  
8 suggested that what was novel was non-adjacency. First of  
9 all, that's not what the patent office was told. The patent  
10 office was expressly told that what was novel in relation to  
11 these claim was the offset. So that would have been news to  
12 the examiner.

13 The second thing is -- and, Your Honor, it might be  
14 better if we submitted a very brief letter brief to explain  
15 this, if the Court was interested, but we have a genus  
16 species issue here. It would not overcome prior art by not  
17 saying "adjacent." It would only overcome prior art if it  
18 expressly said "not adjacent."

19 THE COURT: That's right.

20 MR. WOLF: So I think that this --

21 THE COURT: I agree.

22 MR. WOLF: Your Honor, again, we're not basing this  
23 on one embodiment or a few embodiments. We're basing this on  
24 what is explained in this patent and the prior art, and if  
25 the Court cares to construe it, Dr. Squire's.

1 Thank you very much for your time.

2 THE COURT: Thank you.

3 Just a couple of other matters I need to bring up,  
4 and I may have already done this, so forgive me if I'm  
5 repeating it, but better to do it twice than neglect to do  
6 it. And that is to make the disclosure that one of my law  
7 clerks, I have one-year-term law clerks, and one of my law  
8 clerks this year, Daniel Weiss, will be joining Gibson, Dunn  
9 & Crutcher at the end of the clerkship. So he is not working  
10 on this case. He is in the courtroom solely just to  
11 observe. He's not working on the case and I don't discuss  
12 the --

13 MR. WOLF: We have no objection, Your Honor.

14 THE COURT: Thank you. I just want to make the  
15 disclosure that the case is not assigned to him. It's my  
16 other law clerk who is working on this case. I don't discuss  
17 the substance of the case with him at all even though it is  
18 on calendar.

19 One other thing it occurs to me when this case --  
20 in the unhappy event that the parties don't reach a  
21 resolution of this case and it's set to go to trial, it's the  
22 sort of case that I will be asking -- directing the  
23 parties -- counsel for the parties to come up with a short  
24 glossary of terms for the jury.

25 In every case that gets tried to a jury in my

1 courtroom we give the jury a jury notebook that looks -- I  
2 guess I don't have one up here, but we give them a small  
3 black notebook that has blank pages in that they take their  
4 notes in. It has a copy of the introductory jury  
5 instructions. And I hope, you know, in a case like this it  
6 would have some of the instructions on the substance of the  
7 law that you've agreed upon. But in a case like this it  
8 would also have a glossary of terms, an agreed upon glossary  
9 of terms. And just so you're not hit with that as a surprise  
10 at the pretrial conference where you wouldn't have much time  
11 to put it together, you might start thinking along those  
12 lines now. It shouldn't be overwhelming. It shouldn't be  
13 100 terms, but it should be, you know, in a case like this  
14 probably 10 or 25 terms. So you might start thinking about  
15 it now and putting together some of the agreed upon terms.

16 MR. BARSKY: I'm anticipating, Your Honor, we have  
17 no differences in terms of the basic technology involved or  
18 of the definitions of any of the key terms. I imagine we  
19 will be able to accomplish that very readily.

20 MR. WOLF: That's right.

21 THE COURT: And, again, you may want to do a short  
22 agreed upon one, that I don't always do but I often do and I  
23 probably would do in a case like this is give counsel the  
24 opportunity during voir dire, actually at the very beginning  
25 of voir dire to make mini-opening statements of about five

1 minutes so that the members of the jury panel have a better  
2 idea of what the case is about so that they understand why  
3 we're asking questions. It makes a little more sense.  
4 Doesn't seem quite so intrusive. So you might keep that in  
5 mind.

6 And then, you know, that video that one side or the  
7 other side showing how the technology worked, I would  
8 probably in a case like this if you have an agreed upon short  
9 thing to show as early as voir dire, but certainly during  
10 opening statements, I would permit that. So just to keep  
11 those things in mind.

12 Lastly, where do you stand with settlement or  
13 mediation attempts?

14 MR. WOLF: Your Honor, I believe we have agreed on  
15 a method of mediation. Have we agreed on timing?

16 MR. BARSKY: I'm sorry, Your Honor, I'm not able to  
17 distinguish this case at this moment from others, but we may  
18 have agreed on --

19 MR. HAN: I think in the normal scheduling order we  
20 agreed on an outside mediator.

21 THE COURT: I'm sure you agreed on a private  
22 mediator. Do you remember who it is?

23 MR. BARSKY: I don't think we've agreed on that.

24 MR. WOLF: I think the initial discussions were  
25 that mediation might make sense after the claim construction

1 ruling.

2 THE COURT: That coincides with my memory.

3 MR. HAN: I think we had that conversation.

4 THE COURT: You haven't agreed on a mediator yet?

5 MR. WOLF: No.

6 THE COURT: I won't make any promises, but I think  
7 a couple of weeks. I will have a ruling within a couple of  
8 weeks.

9 MR. BARSKY: Thank you very much, Your Honor.

10 THE COURT: Thank you both very much.

11 MR. BARSKY: Appreciate it.

12 (Proceedings concluded)

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C E R T I F I C A T E

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# EXHIBIT I

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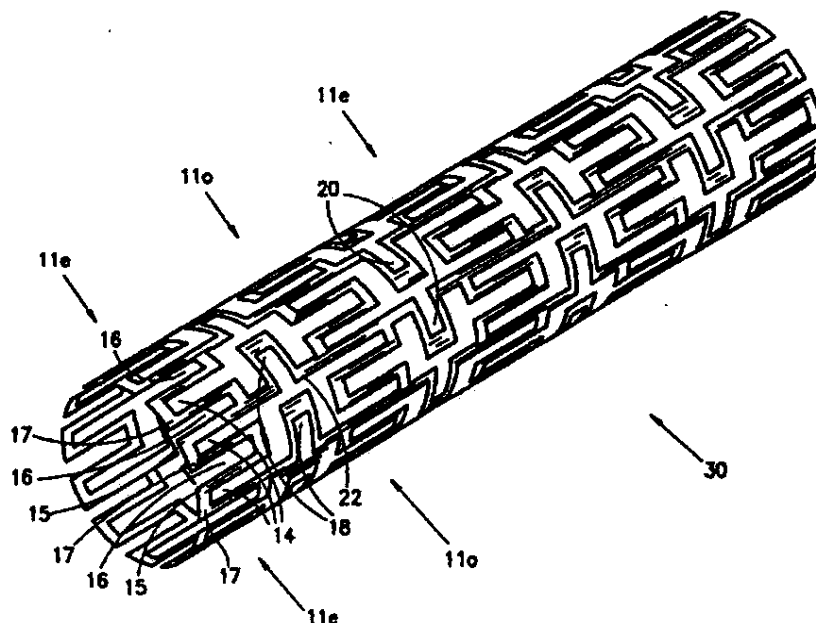
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(54) Title: A FLEXIBLE EXPANDABLE STENT



(57) Abstract

There is disclosed a stent (30) for implanting in the body. The stent (30) is formed of a tube having a patterned shape which has first and second meander patterns (11, 12) having axes extending in first and second directions. The first meander patterns can be formed into even and odd first meander patterns. The even and odd first meander patterns are 180 degrees out of phase with each other, and the odd patterns occur between every two even patterns. The second meander patterns are intertwined with the first meander patterns. The first and second directions can be orthogonal to each other. The second meander patterns can also be formed of even and odd patterns.



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**A FLEXIBLE EXPANDABLE STENT**

5

**FIELD OF THE INVENTION**

The present invention relates generally to stents for implanting into a living body.

10 **BACKGROUND OF THE INVENTION**

Various stents are known in the art wherein, for the present application, the term "stent" indicates a device, made of body-compatible material, which is utilized to widen a blood vessel, or other orifice in the body, and to maintain the resultant size of the lumen. Typically, the stent is delivered to the desired location in the body with an inflatable balloon and, when the balloon is inflated, the stent expands, thereby widening the orifice. Other mechanical devices which cause expansion of the stent are also utilized.

Exemplary patents in the field of stents formed of wire are: U.S. 5,019,090 to Pinchuk, U.S. 5,161,547 to Tower, U.S. 4,950,227 to Savin, et al., U.S. 5,314,472 to Fontaine, U.S. 4,886,062 and U.S. 4,969,458 to Wiktor and U.S. 4,856,516 to Hillstead. Stents formed of cut stock metal are described in: U.S. 4,733,665 to Palmaz, U.S. 4,762,128 to Rosenbluth, U.S. 5,102,417 to Palmaz and Schatz, U.S. 5,195,984 to Schatz and WO 91 FR013820 to Meadox.

The stents described in U.S. 5,102,417 to Palmaz and Schatz have expandable tubular grafts connected together with a flexible connector. The grafts are formed of a plurality of slots disposed parallel to the longitudinal axis of the tube. The flexible connectors are helical connectors. Since the tubular grafts are relatively rigid, the flexible connectors are needed so that the stents can bend when being fed through a curved blood vessel. When the stents of U.S. 5,102,417

WO 96/03092

PCT/US95/08975

expand, the grafts expand radially and, consequently, shrink longitudinally. However, at the same time, the helical connectors twist. The twisting motion is most probably harmful to the blood vessel.

5 U.S. 5,195,984 to Schatz describes a similar stent but with one straight connector, parallel to the longitudinal axis of the tubular grafts, between tubular grafts. The straight member removes the twisting motion; however, it is not a very strong  
10 connector.

#### SUMMARY OF THE PRESENT INVENTION

It is therefore an object of the present invention to provide a flexible stent which minimally shrinks, in  
15 the longitudinal direction, during expansion.

The stent of the present invention is formed of a tube having a patterned shape which has first and second meander patterns having axes extending in first and second directions wherein the second meander  
20 patterns are intertwined with the first meander patterns. The first and second directions can be orthogonal to each other.

In accordance with one embodiment of the present invention, the first meander patterns are formed into  
25 even and odd first meander patterns. The even and odd first meander patterns are 180° out of phase with each other and the odd patterns occur between every two even patterns. The second meander patterns can also be formed of even and odd patterns.

30 Additionally, in accordance with a preferred embodiment of the present invention, the second meander patterns have two loops per period and the even and odd first meander patterns are connected on first and second sides, respectively, of each loop of the second  
35 meander patterns.

Alternatively or in addition, the second meander

patterns are formed of even and odd second meander patterns. In this embodiment, the even and odd first meander patterns have loops and the even and odd second meander patterns are connected to the even and odd first meander patterns so as to leave one full loop between each pair of even and odd second meander patterns.

Moreover, in accordance with a preferred embodiment of the present invention, the first and second meander patterns are formed from flat metal. Alternatively, they can be cut from wire. Further, they can be imbedded or covered with any body-compatible material.

**BRIEF DESCRIPTION OF THE DRAWINGS**

The present invention will be understood and appreciated more fully from the following detailed description taken in conjunction with the drawings in which:

Fig. 1 is an illustration of a patterned stent, constructed and operative in accordance with a first preferred embodiment of the present invention;

Fig. 2 is an illustration of the pattern of the stent of Fig. 1;

Fig. 3 is an illustration of the stent of Fig. 1 in a bent position;

Fig. 4 is an illustration of the stent of Fig. 1 in an expanded format;

Figs. 5A and 5B are illustrations of the changes in the patterns of the stent of Fig. 1 due to expansion;

Fig. 6 is a schematic illustration of a second embodiment of the pattern for a stent;

Fig. 7 is an illustration of a third embodiment of the pattern for the stent; and

Fig. 8 is an illustration of the pattern of Fig. 7 in an expanded format.

**DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS**

5       Reference is now made to Figs. 1 - 4 which illustrate a first embodiment of a stent, constructed and operative in accordance with the principles of the present invention. Fig. 1 illustrates the stent in its non-expanded form, Fig. 2 illustrates the pattern of  
10       the stent, Fig. 3 illustrates it in a partially bent position and Fig. 4 illustrates it in an expanded form.

      The stent of the present invention is a tube whose sides are formed into a plurality of each of two orthogonal meander patterns which patterns are  
15       intertwined with each other. The term "meander pattern" is taken herein to describe a periodic pattern about a center line and "orthogonal meander patterns" are patterns whose center lines are orthogonal to each other.

20       In the stent of Figs. 1 - 4, the two meander patterns are labeled 11 and 12 and they are most easily seen in Fig. 2. Meander pattern 11 is a vertical sinusoid having a vertical center line 9. Meander pattern 11 has two loops 14 and 16 per period wherein  
25       loops 14 open to the right while loops 16 open to the left. Loops 14 and 16 share common members 15 and 17, where member 15 connects from one loop 14 to its following loop 16 and member 17 connects from one loop 16 to its following loop 14.

30       Meander pattern 12 is an horizontal pattern having an horizontal center line 13. Meander pattern 12 also has loops, labeled 18 and 20, but between loops of a period is an extended straight section labeled 22. Loops 18 open downwards and loops 20 open upwards.  
35       Vertical meander pattern 11 is provided in odd and even (o and e) versions which are 180° out of phase with

WO 96/03092

PCT/US95/08975

each other. Thus, each left opening loop 16 of meander pattern 110 faces a right opening loop 14 of meander pattern 11e and a right opening loop 14 of meander pattern 110 faces a left opening loop 16 of meander pattern 11e.

Horizontal meander pattern 12 is also provided in odd and even forms. The straight sections 22 of horizontal meander pattern 12e intersect with every third common member 17 of vertical meander pattern 11e. The straight sections 22 of horizontal meander pattern 120 intersect with every third common member 15 of vertical meander pattern 11e. beginning with the common member 15 two after an intersected common member 17. The result is a full loop 14 between meander patterns 12e and 120 and a full loop 16 between meander patterns 12o and 12e.

Returning to Fig. 1, the pattern of Fig. 2 is formed into a tube 30 of an easily deformable material, such as a metal. Due to the two meander patterns, the stent of Fig. 1, when attached over a catheter balloon, is flexible and can therefore be easily dragged through curved blood vessels. An example of the way in which the stent of Fig. 1 bends is illustrated in Fig. 3.

In Fig. 3, the stent begins to bend at the point marked A in the direction marked by arrow 40. As the stent begins to curve, the section marked I becomes the inside of the curve while the section marked O becomes the outside of the curve. The inside of the curve I is shortened vis-a-vis the outside of the curve O.

During bending, the loops 14 - 20 to the right of the point A change shape in order to compensate for the differences in length between the inside and outside curves. For example, loops 18i and 20i near the inside of the curve are closer together than loops 180 and 200 on the outside of the curve, which expand. Loops 14i and 16i near the inside I are compressed while the

loops 140 and 160 closer to the outside O of the curve are expanded.

As can be seen, both meander patterns 11 and 12 are involved in the bending. Although not shown, it will be appreciated that the stent of Figs. 1 - 4 can bend in any direction and in more than one direction at any time.

Fig. 4 illustrates the stent of Fig. 1 in its expanded form. When the stent expands, both meander patterns 11 and 12 expand (i.e. all loops 14 - 20 open up). As can be seen, the expanded stent has two types of enclosed spaces, a large space 42 between meander patterns 120 and 12e and a small space 44 between meander patterns 12e and 12o. As can also be seen, each large space 42 has two loops 14 on its left side and two loops 16 on its right side. The large spaces between vertical meander patterns 11e and 11o, which are labeled 42a, have loops 18 at their tops and bottoms while the large spaces between vertical meander patterns 11o and 11e, which are labeled 42b, have loops 20 at their tops and bottoms. Similarly for small spaces 44a and 44b.

It is noted that, due to the orthogonal meander patterns 11 and 12, the stent of Fig. 1 does not significantly shrink during expansion. This is illustrated in detail in Figs. 5A and 5B to which reference is now made. Fig. 5A illustrates the movement, during expansion, of one vertical meander pattern 11 and Fig. 5B illustrates the movement, during expansion, of one horizontal meander pattern 12. The original patterns are shown with solid lines and the expanded patterns are shown with dashed lines.

The vertical meander pattern 11 of Fig. 5A expands by widening its loops 14 and 16. As a result, the vertical meander pattern 11 grows vertically by an amount  $2 \cdot h_1$ , per loop. However, it also shrinks

horizontally, by an amount  $2*d_1$ . Similarly, the horizontal meander pattern 12 of Fig. 5B expands by widening its loops 18 and 20. As a result, the horizontal meander pattern 12 grows horizontally by an amount  $2*d_2$  per loop. However, it also shrinks vertically, by an amount  $h_2$ . Thus, the vertical growth of the vertical meander pattern 11 compensates, at least partially, for the vertical shrinkage of the horizontal meander pattern 12, and vice versa. It is noted that the end portions of any stent are only partially compensated and therefore, may shrink somewhat.

It will be appreciated that the two orthogonal meander patterns 11 and 12 and the compensation they provide to each other provides flexibility to the unexpanded stent of Fig. 1. However, when the stent is expanded, the changes in each of loops 14 and 16 provide rigidity to the resultant stent and thus, enable the stent to maintain a blood vessel at a desired inner diameter.

The stent of the present invention can be manufactured from flat metal which is etched into the pattern of Fig. 2. The etched metal is then bent to form the tube 30. Alternatively, the pattern of Fig. 2 can be manufactured from welded or twisted wire.

It will be appreciated that the stent of the present invention can be made from metal and/or wire. Additionally, it can be plated with a protective material, embedded with a medicine, and/or covered with a material which can fill in the spaces 42 and 44.

It will be appreciated that the present invention encompasses all stents manufactured with a pattern formed of two meander patterns, orthogonal or otherwise. Another exemplary pattern, also with orthogonal meander patterns, is provided herein wherein Fig. 6 is a schematic version and Fig. 7 is a more



WO 96/03092

PCT/US95/08975

rounded version. Fig. 8 shows the pattern of Fig. 7 in an expanded format. The pattern of Figs. 6 and 7 is similar to that shown in Fig. 2 except that it has more horizontal meander patterns 12 and they are of one  
5 kind, rather than being even and odd as in Fig. 2.

As can be seen in both Figs. 6 and 7, there are two types of vertical meander patterns 11e and 11o which are 180° out of phase with each other. The horizontal meander patterns 12 connect with every line  
10 15 of vertical meander pattern 11e.

Fig. 8 illustrates the pattern of Fig. 7 in an expanded format. Since there are no even and odd horizontal meander patterns, in the expanded format of Fig. 8, there are no large and small spaces. Instead,  
15 all spaces are of the same size.

It will be appreciated by persons skilled in the art that the present invention is not limited to what has been particularly shown and described hereinabove. Rather the scope of the present invention is defined by  
20 the claims which follow:

## CLAIMS

1. A stent formed of a tube having a patterned shape, the patterned shape comprising:

5 a. even first meander patterns having axes extending in a first direction;

b. odd first meander patterns, also having axes extending in said first direction, wherein said odd first meander patterns are 180° out of phase with said even first meander patterns and occur between every two even first meander patterns;

10 c. second meander patterns having axes extending in a second direction different than said first direction, wherein said second meander patterns are intertwined with said even and odd first meander patterns to form a generally uniform distributed structure.

2. A stent according to claim 1 and wherein said even first meander patterns and said odd first meander patterns are periodic about axes extending in said first direction and wherein said second meander patterns are periodic about axes extending in said second direction.

25 3. A stent according to either of claims 1 or 2 and wherein said second meander patterns have two loops per period and wherein said even and odd first meander patterns are connected on first and second sides, respectively, of each loop.

35 4. A stent according to any of the previous claims and wherein said second meander patterns are formed of even and odd second meander patterns.

5. A stent according to claim 4 and wherein said

WO 96/03092

PCT/US95/08975

even and odd first meander patterns have loops and wherein said even and odd second meander patterns are connected to said even and odd first meander patterns so as to leave one full loop between each pair of even  
5 and odd second meander patterns.

6. A stent formed of a tube having a patterned shape, the patterned shape comprising:

- a. first meander patterns having axes  
10 extending in a first direction;
- b. second meander patterns having axes extending in a second direction, different than said first direction, wherein said second meander patterns are intertwined with said even and odd  
15 first meander patterns to form a generally uniform distributed structure.

7. A stent according to claim 6 and wherein said first meander patterns are periodic about axes  
20 extending in said first direction and wherein said second meander patterns are periodic about axes extending in said second direction.

8. A stent according to any of claims 1 - 7 and  
25 wherein said first and second directions are orthogonal.

9. A stent according to any of claims 1 - 7 and wherein said first and second directions are not  
30 orthogonal.

10. A stent according to any of claims 1 - 9 and wherein said first and second meander patterns are formed from wire.  
35

11. A stent according to any of claims 1 - 9 and

WO 96/03092

PCT/US95/08975

wherein said first and second meander patterns are cut from flat metal.

12. A stent according to any of the previous  
5 claims and wherein said stent is finished in one of the following ways: plating with a protective material, embedding with medicine, and covered with a material.

13. A stent, comprising:  
10 a. at least odd and even alternating serpentine sections, each having first areas of inflection, wherein said odd serpentine section is out of phase from said even serpentine section such that first areas of inflection on said odd  
15 serpentine section are adjacent first areas of inflection on said even serpentine section; and  
b. at least one flexible connector, comprising a plurality of flexible links connecting adjacent first areas of inflection of  
20 adjacent even and odd serpentine sections, wherein each flexible link has at least two portions connected by at least one second area of inflection, and wherein said first and second areas of inflection define first and second angles whose bisecting lines  
25 are at angles one to another.

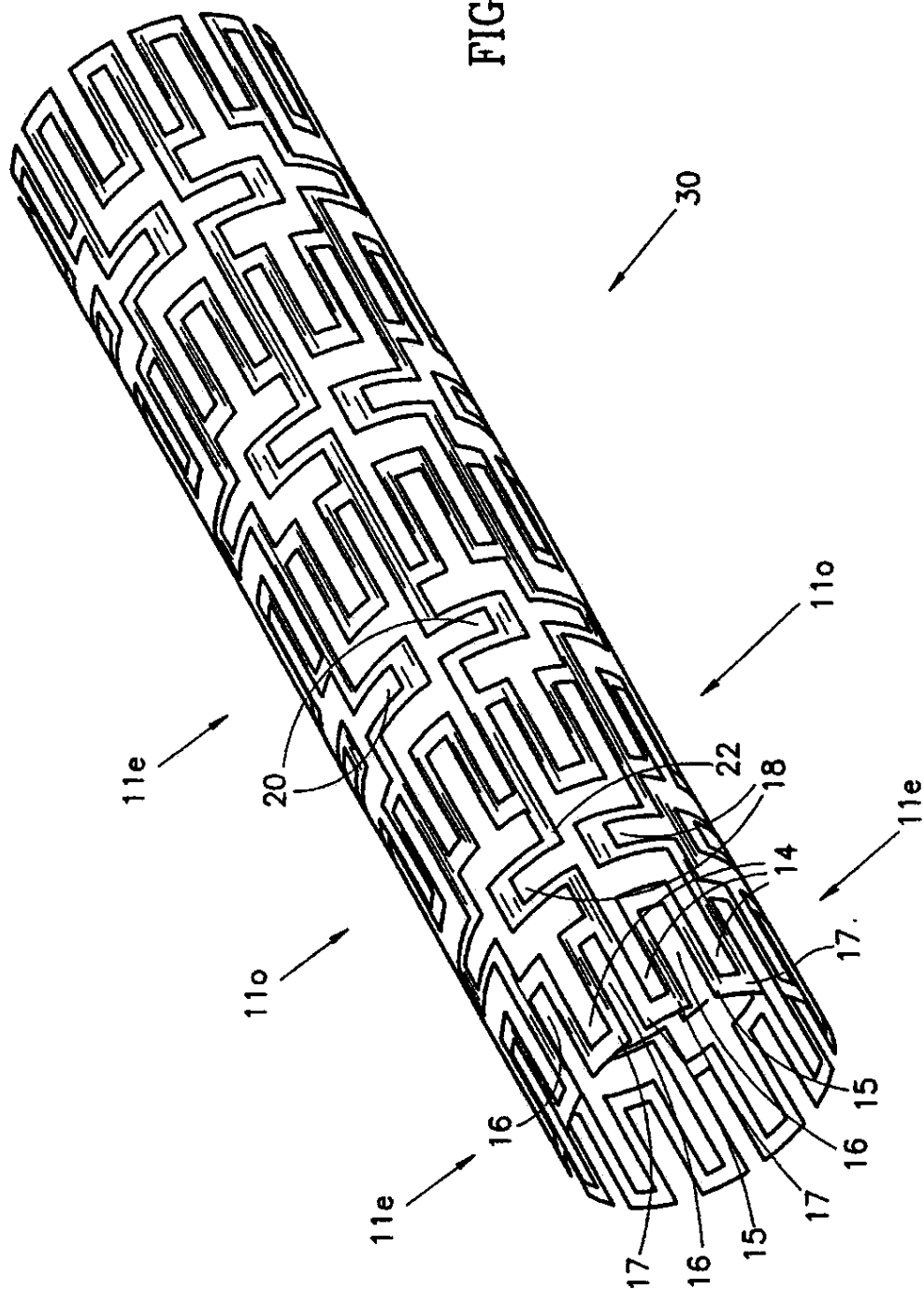
14. A stent comprising a mesh of adjacent, connected cells, each cell comprising:  
30 an even number of fixed length, alternating, first and second loops, connected together in a closed cell, each loop having at least two portions with an area of inflection there between, said first and second loops defining first and second angles whose bisecting lines are at angles  
35 one to another.

WO 96/03092

PCT/US95/08975

1/6

FIG. 1



WO 96/03092

PCT/US95/08975

2/6

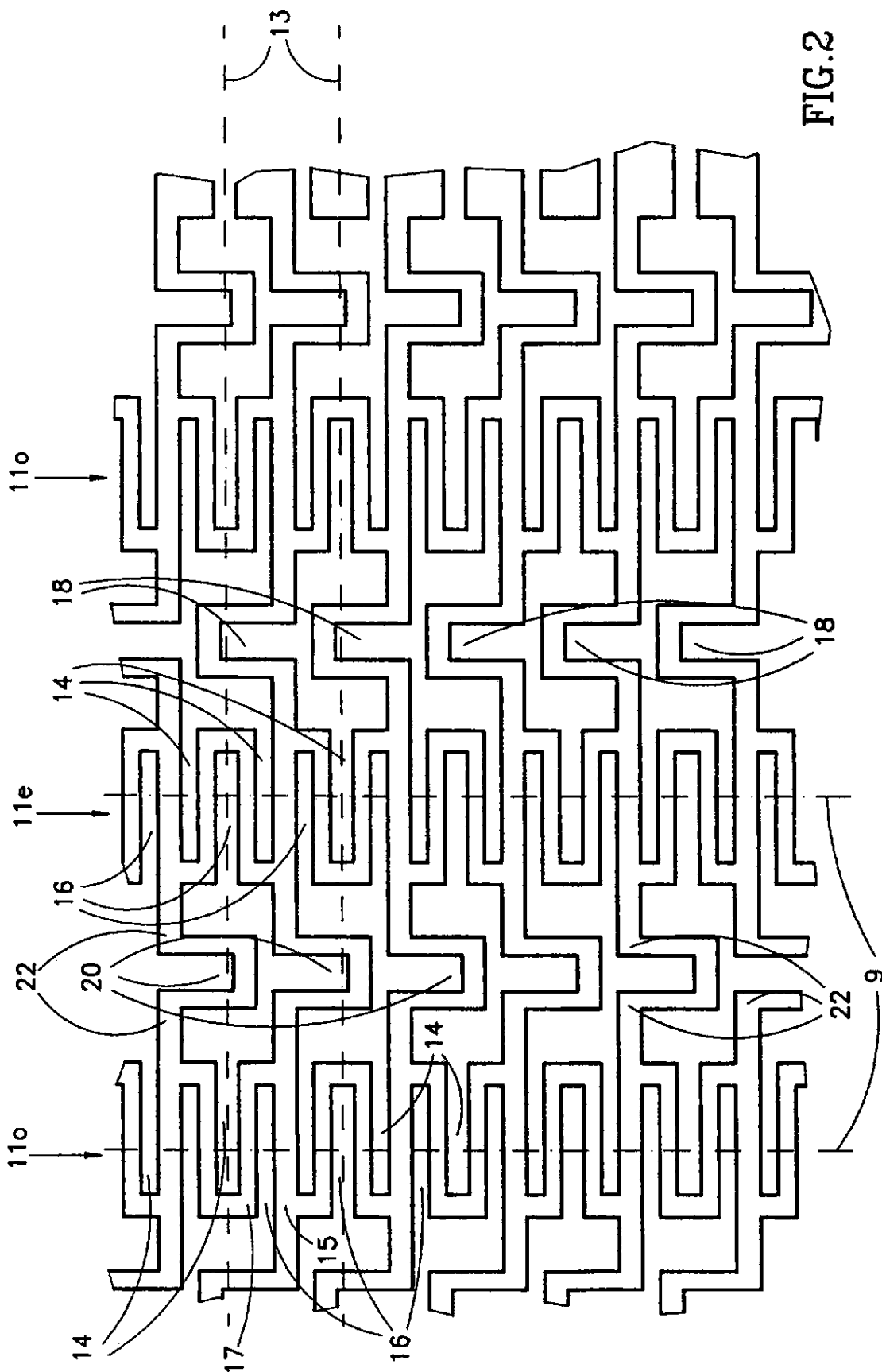


FIG. 2

WO 96/03092

PCT/US95/08975

3/6

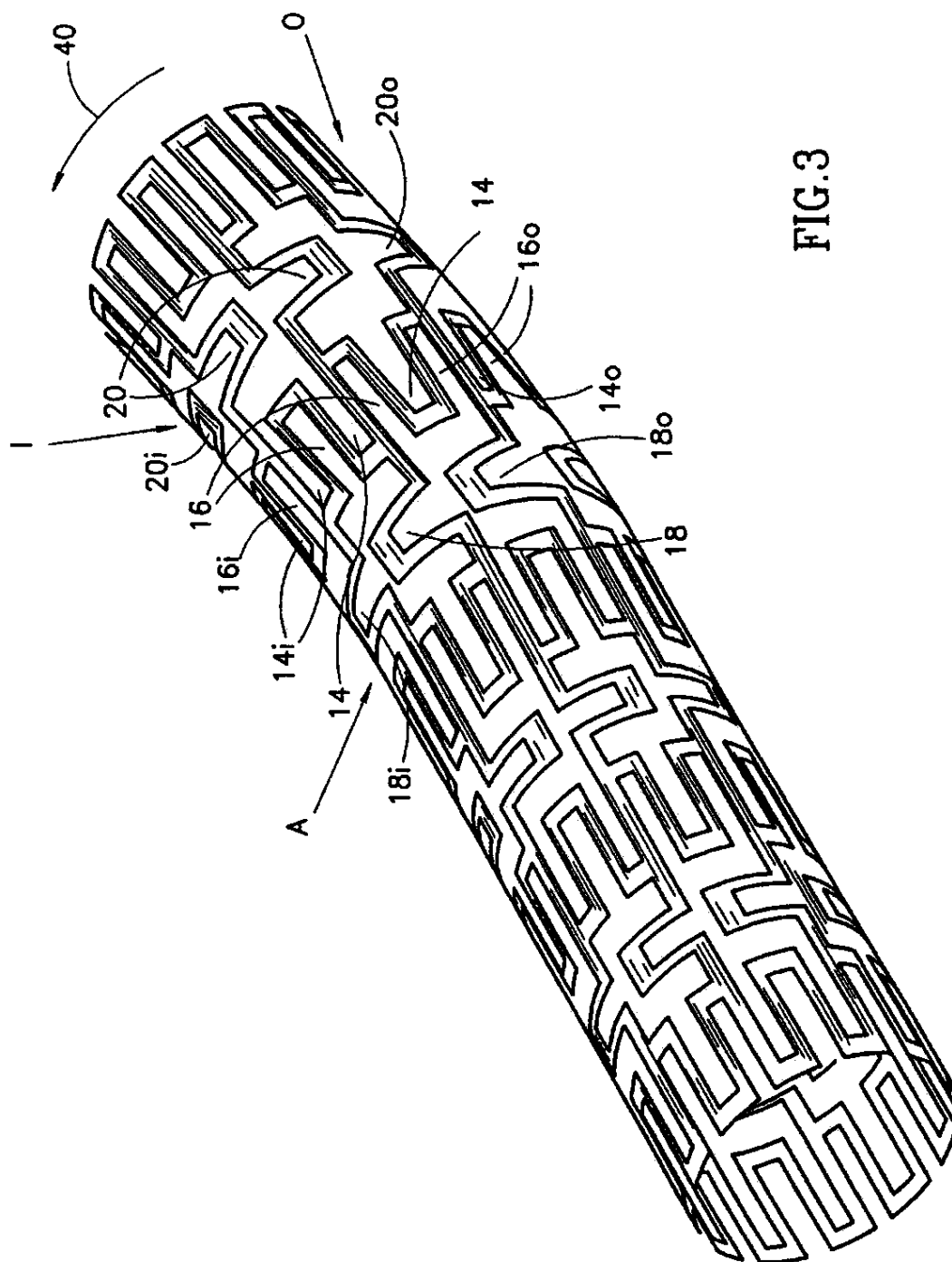
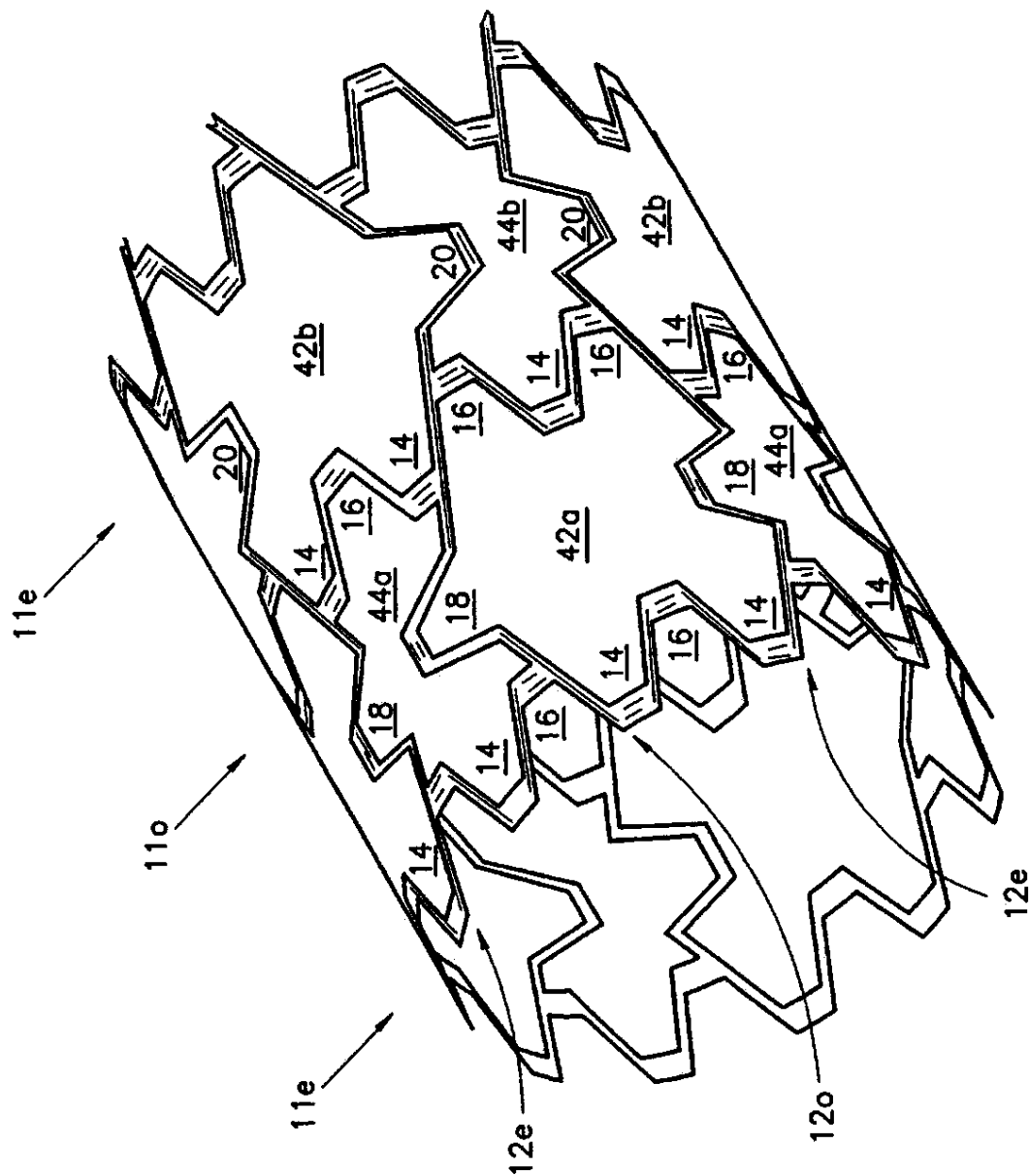


FIG. 4





WO 96/03092

PCT/US95/08975

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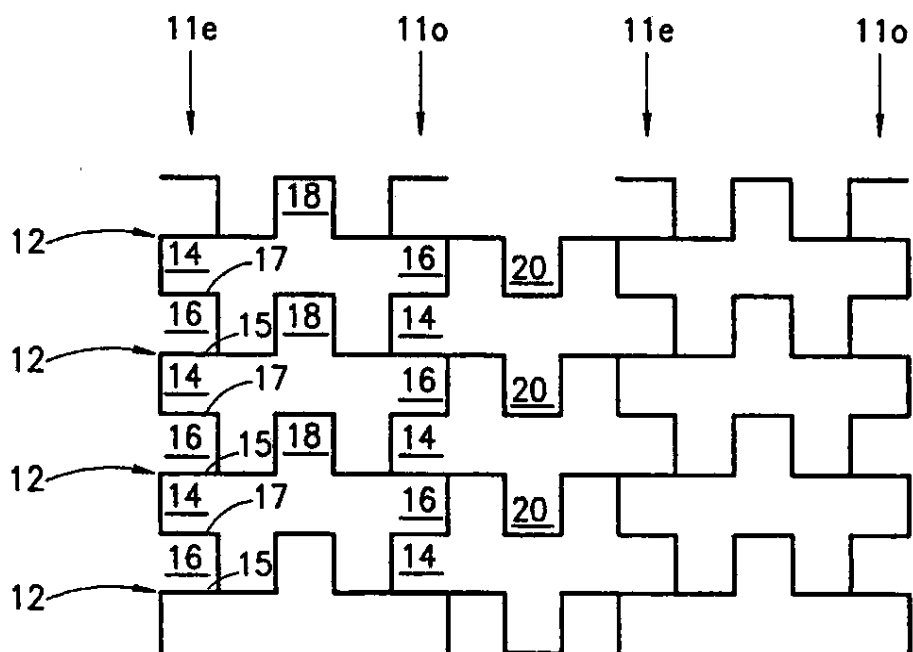
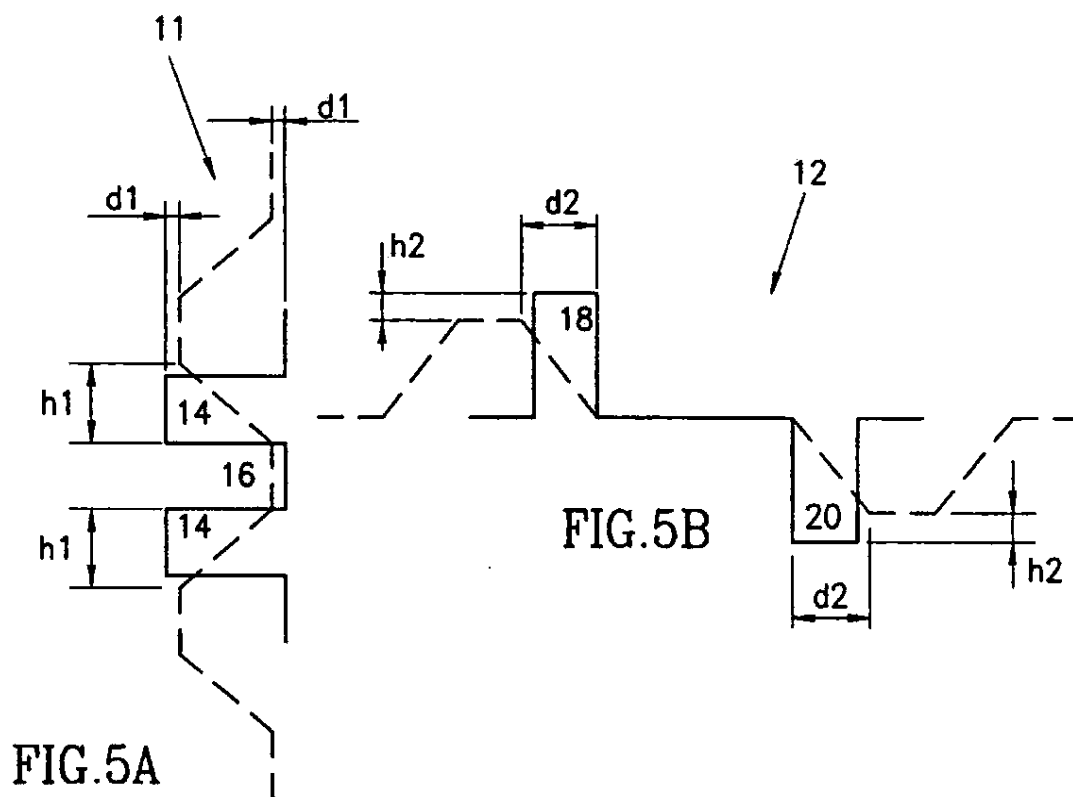
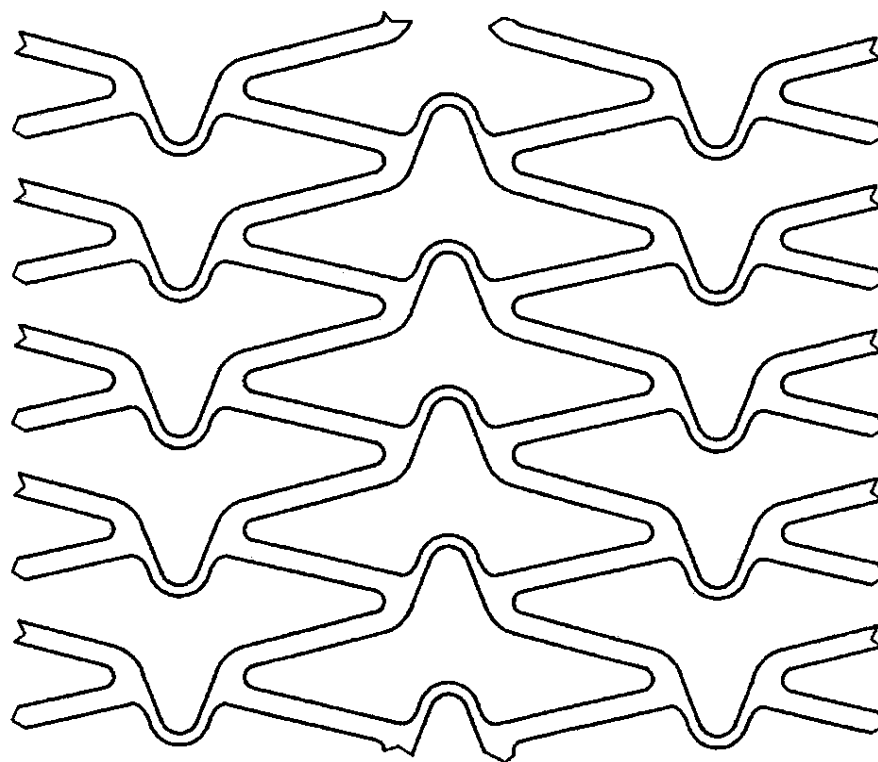
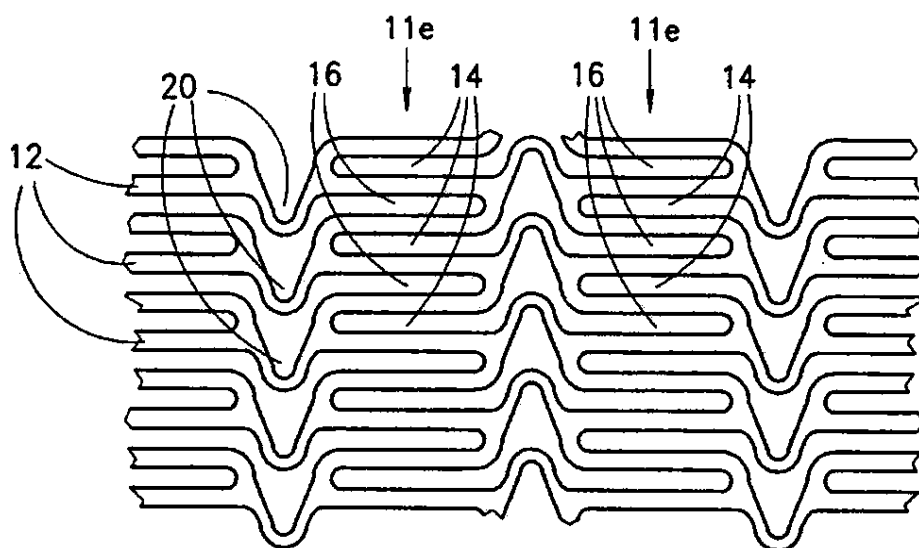


FIG. 6

WO 96/03092

PCT/US95/08975

6/6



## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US95/08975

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) :A61F 02/02; A61M 5/00

US CL :606/198

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 606/108, 191, 194, 198, 200; 623/1, 11, 12

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

NONE

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A, E	US, A, 5,449,373 (PINCHASIK ET AL.) 12 September 1995, see entire document.	1-14
A	EP, A, 0 606 165 (MIKSZA) 13 July 1994, see entire document.	1-14

☐ Further documents are listed in the continuation of Box C.
 ☐ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to underscore the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be part of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier document published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combinations being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"A" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

25 OCTOBER 1995

Date of mailing of the international search report

16 NOV 1995

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# EXHIBIT J



US005449373A

**United States Patent** [19]

Pinchasik et al.

[11] **Patent Number:** 5,449,373[45] **Date of Patent:** Sep. 12, 1995[54] **ARTICULATED STENT**[75] **Inventors:** Gregory Pinchasik; Jacob Richter,  
both of Ramat Hasharon, Israel[73] **Assignee:** Medinol Ltd., Ramat Hasharon,  
Israel[21] **Appl. No.:** 213,272[22] **Filed:** Mar. 17, 1994[51] **Int. Cl.<sup>6</sup>** ..... A61M 5/00; A61F 2/02[52] **U.S. Cl.** ..... 606/198; 623/1;  
623/12[58] **Field of Search** ..... 623/1, 11, 12; 606/108,  
606/191-195, 198, 200; 604/8[56] **References Cited****U.S. PATENT DOCUMENTS**

4,800,882 1/1989 Gianturco .  
 4,830,003 5/1989 Wolff et al. .  
 4,886,062 12/1989 Wiktor .  
 5,019,085 5/1991 Hillstead .  
 5,102,417 4/1992 Palmaz ..... 604/8

5,104,404 4/1992 Wolff .

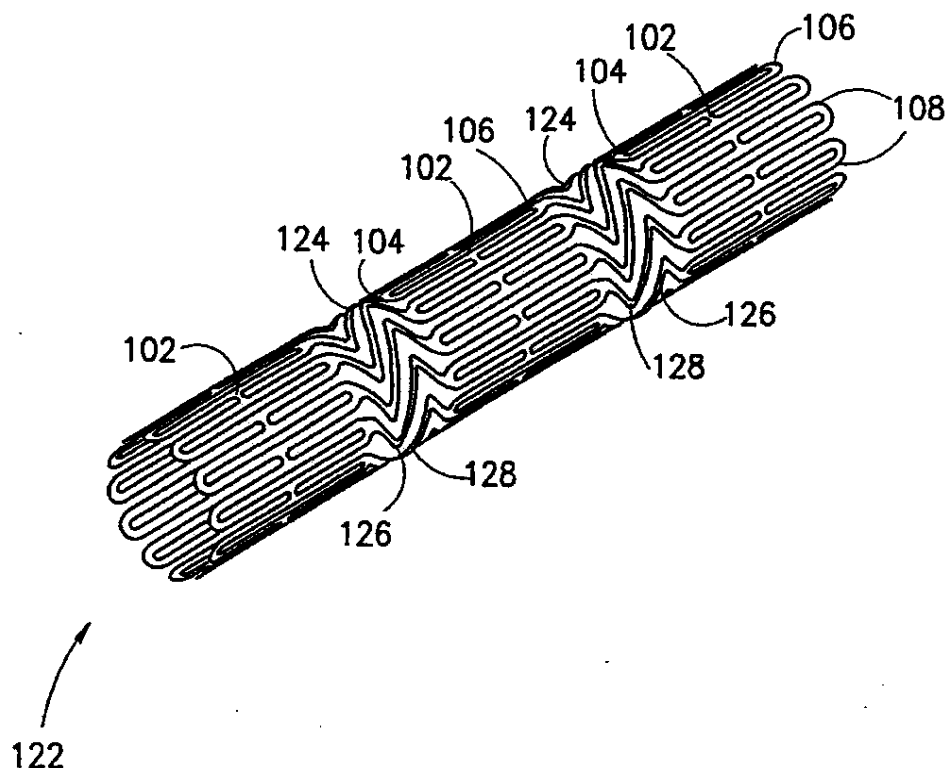
5,195,984 3/1993 Schatz ..... 606/195

**FOREIGN PATENT DOCUMENTS**

0541443 5/1993 European Pat. Off. .... 623/1

*Primary Examiner*—Stephen C. Pellegrino*Assistant Examiner*—William Lewis*Attorney, Agent, or Firm*—Skjerven, Morrill,  
MacPherson, Franklin & Friel[57] **ABSTRACT**

An articulated stent for delivering through a bodily conduit, for example, a peripheral or coronary artery, which has one or more curved portions and for implantation therein. The articulated stent includes at least two substantially rigid segments and a flexible connector for connecting adjacent segments. The connector assumes a cylindrical configuration when relaxed and a differentially stretched and compressed curved configuration when flexed.

**6 Claims, 5 Drawing Sheets**

U.S. Patent

Sep. 12, 1995

Sheet 1 of 5

5,449,373

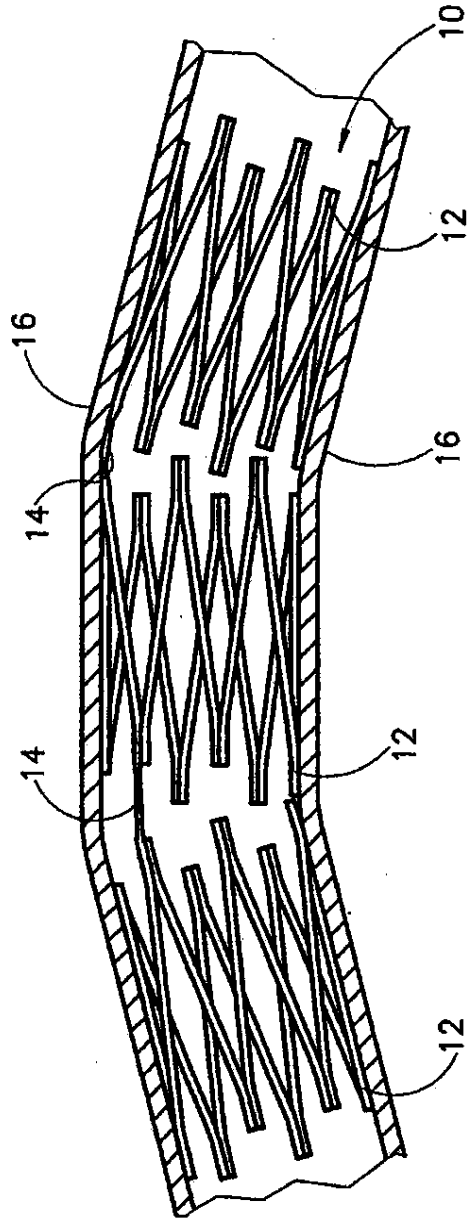


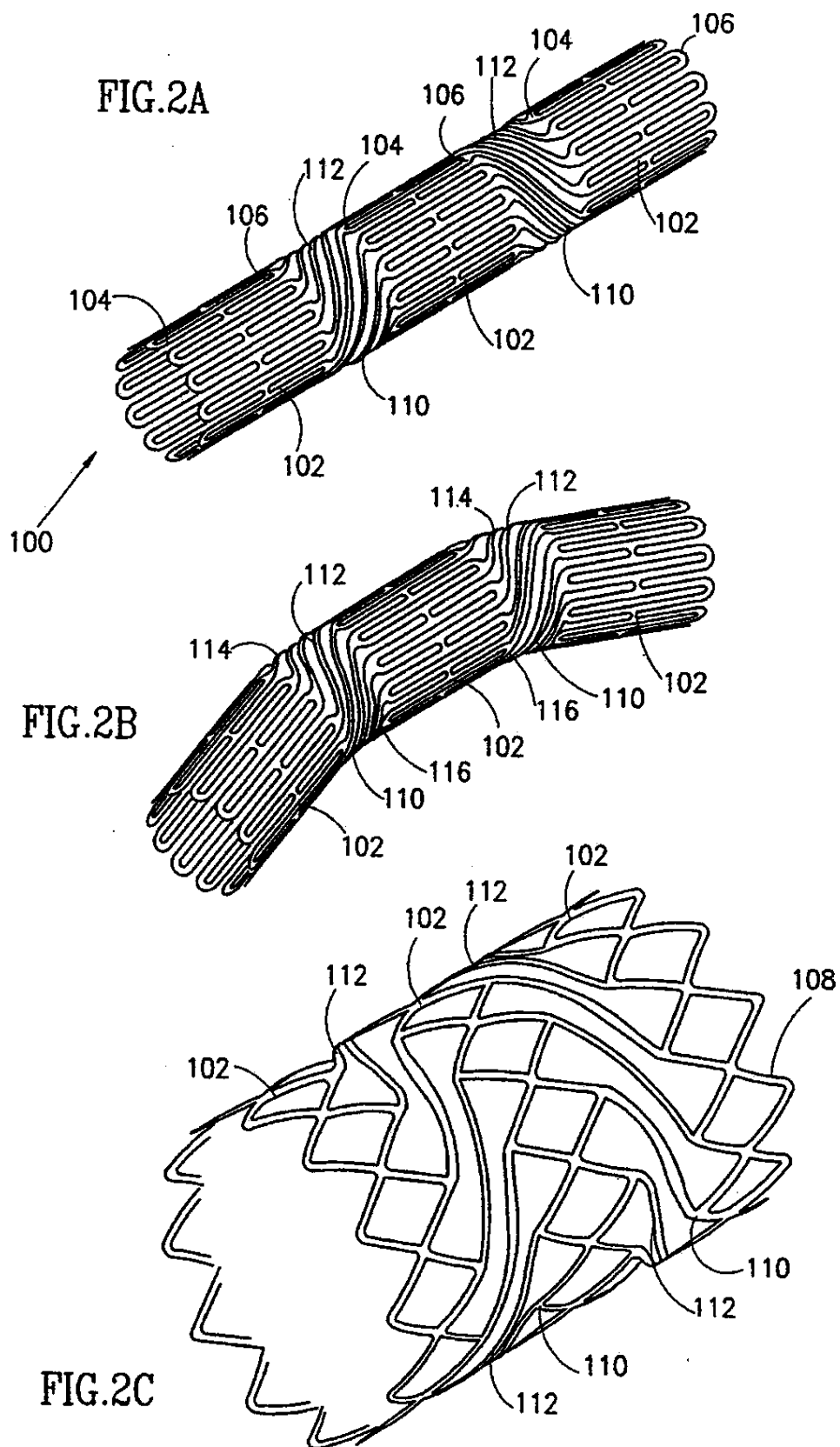
FIG. 1  
PRIOR ART

U.S. Patent

Sep. 12, 1995

Sheet 2 of 5

5,449,373

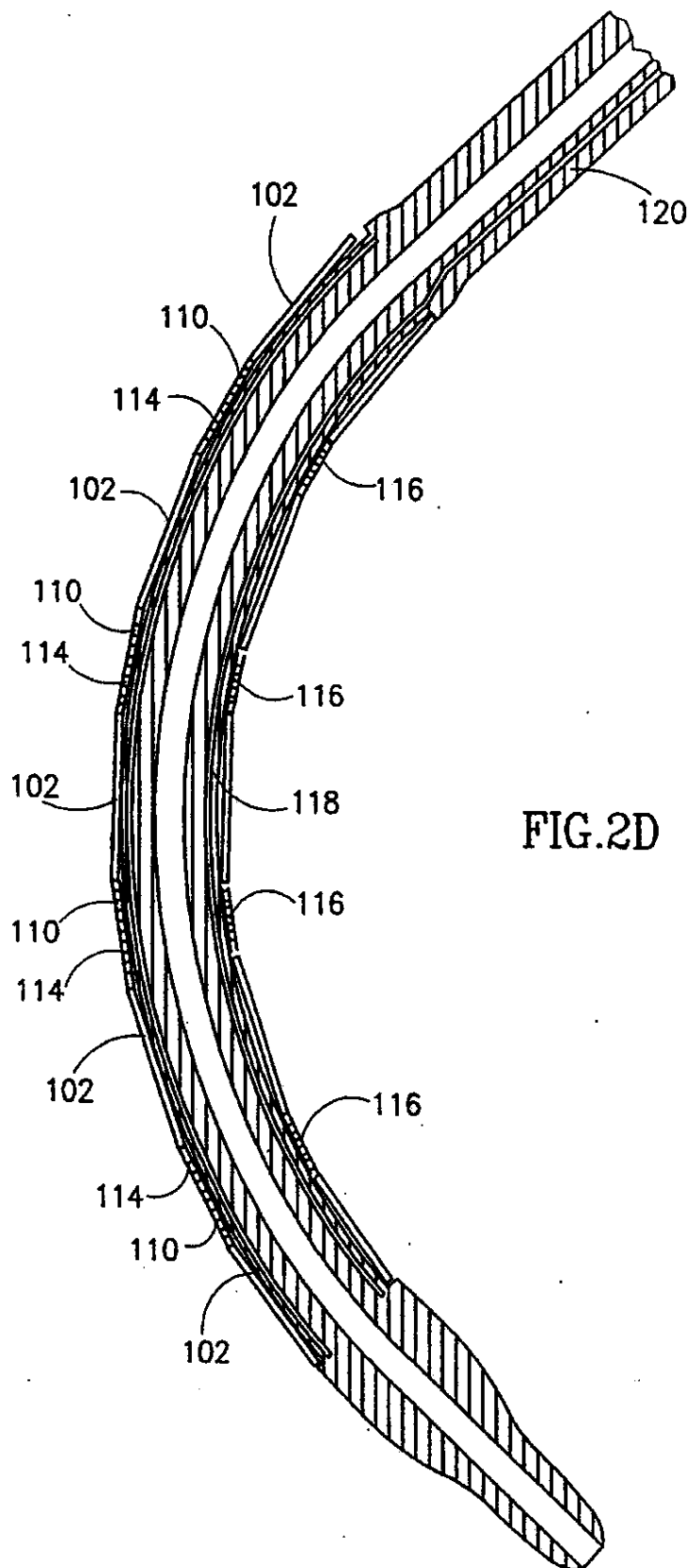


**U.S. Patent**

**Sep. 12, 1995**

**Sheet 3 of 5**

**5,449,373**



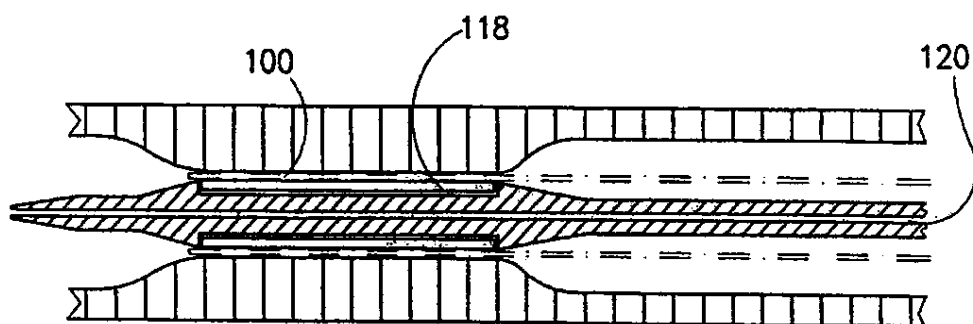


**U.S. Patent**

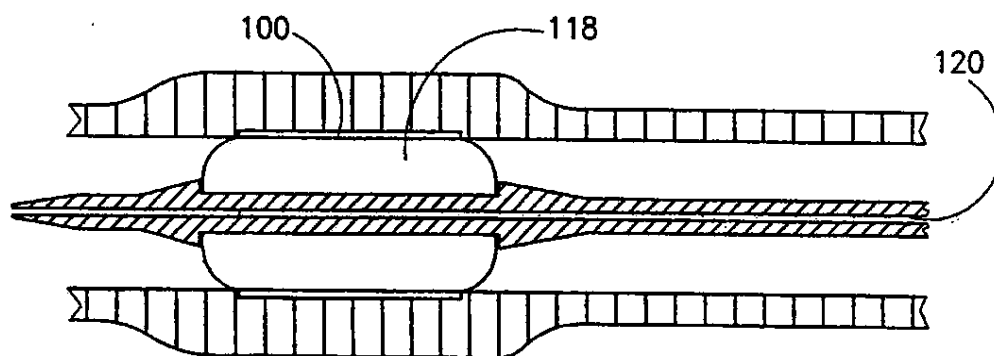
**Sep. 12, 1995**

**Sheet 4 of 5**

**5,449,373**



**FIG. 2E**



**FIG. 2F**

U.S. Patent

Sep. 12, 1995

Sheet 5 of 5

5,449,373

FIG. 3A

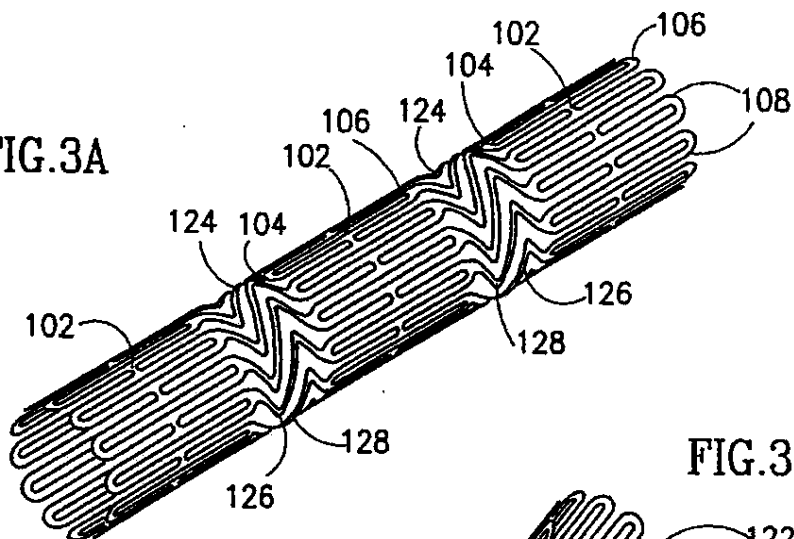


FIG. 3B

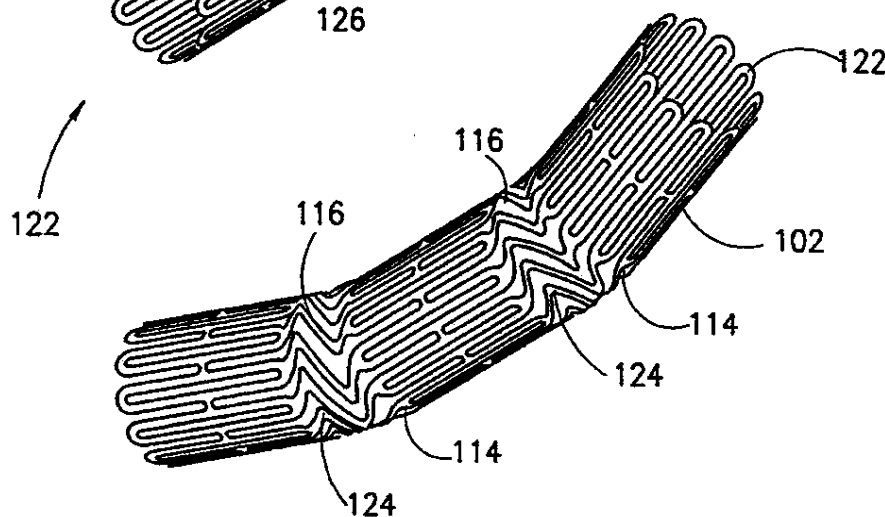
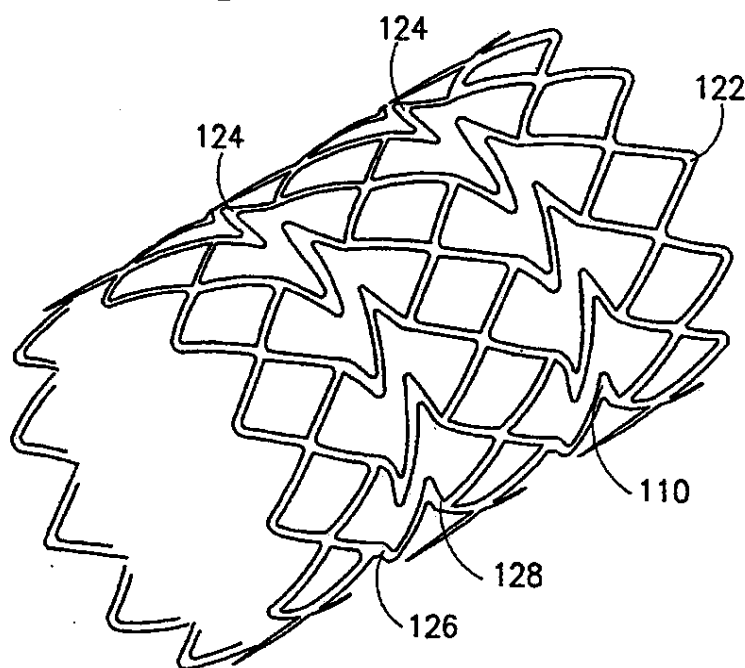


FIG. 3C



5,449,373

1

## ARTICULATED STENT

## FIELD AND BACKGROUND OF THE INVENTION

The present invention relates to stents which are implanted as part of a balloon angioplasty procedure within a bodily conduit of a living animal or a human to maintain patency. In particular, the present invention relates to articulated intravascular stents for delivery through or implantation in a blood vessel having a curved portion.

Intravascular stents having a constricted diameter for delivery through a blood vessel and an expanded diameter for applying a radially outwardly extending force for supporting the blood vessel are known in the art. Articulated intravascular stents for either delivery through a curved blood vessel or implanted therein are also known in the art.

Self-expandable articulated stents are described, for example, in U.S. Pat. No. 5,104,404 entitled "Articulated Stent" to Wolff. Balloon expandable articulated stents are commercially available under the trade name Palmaz-Schatz Balloon-Expandable Stents from Johnson & Johnson Intervention Systems Co.

A prior art self-expandable articulated intravascular stent 10 deployed in a curved blood vessel 16 is now described with reference to FIG. 1 which is, in actual fact, FIG. 2 of the above referenced U.S. Pat. No. 5,104,404. Stent 10 is made up of a number of individual segments 12 articulated by hinges 14 connected at each end to segments 12. Stent 10 is preferably fabricated from memory shape material, for example, nitinol, and as such is self expandable after delivery from a delivery system described in U.S. Pat. No. 4,830,003 to Wolff et al. However, these prior art articulated intravascular stents suffer from a number of disadvantages both during delivery through a curved blood vessel and when implanted therein as will now described.

The delivery of stent 10 through curved blood vessel 16 is more complicated than the delivery of a non-articulated stent in that stent 10 has to be angularly oriented such that its hinges 14 are located towards the convex portion of blood vessel 16 so that stent 10 can be flexed inward. In the present example, it will be noted that hinges 14 are located on the same side of segments 12 because blood vessel 16 has only a simple curve in one plane. It can be readily appreciated that delivery of stents through blood vessels which have one or more curved portions which are not in the same plane is even more complicated and generally requires specially constructed stents.

Even when implanted in a curved blood vessel 16, stents 10 are shown to be lacking in that the gaps between segments 12 render the curved portion of blood vessel 16 without support. Furthermore, the gaps at the convex portion of blood vessel 16 are substantially greater than the gaps at the concave portion thereof, thereby inducing non-uniform and therefore undesirable stresses on blood vessel 16.

Therefore, it would be highly desirable to have an articulated stent which does not require any particular angular orientation when being delivered through a curved bodily conduit and provides continuous and uniform support for both straight and curved portions of a bodily conduit when implanted.

2

It would also be highly desirable the structure of a stent does not depend on the particular orientations of curved portions of a blood vessel.

## SUMMARY OF THE INVENTION

The object of the present invention is for an articulated stent which can be delivered through a curved bodily conduit using a routine medical procedure and a conventional stent delivery system. Furthermore, the stent provides continuous and uniform support for both straight and curved portions of a bodily conduit when implanted. Still further, the structure of a stent and its support of a bodily conduit do not depend on the orientations of the curved portions of the conduit.

The objective of the present invention is achieved by an articulated stent, comprising: (a) at least two substantially rigid segments; and (b) a flexible connector for connecting adjacent segments, wherein the connector assumes a substantially cylindrical configuration when relaxed and a differentially stretched and compressed curved configuration when flexed.

After expansion, the rigid segments of the stent preferably present a fine diamond shaped mesh having 1 mm long sides to provide continuous and uniform support for straight portions of a bodily conduit.

The connectors can be implemented as a plurality of substantially helical links connecting adjacent segments. Alternatively, the connectors can be implemented as links each having at least one kink. The connectors typically have between 8-24 links to provide continuous and uniform support for both straight and curved portions of a bodily conduit.

The stents have constricted diameters for intraluminal delivery and are then deformed, by the inflation of a balloon forming part of their catheter delivery system, to expanded diameters for applying radially outwardly extending forces for supporting the lumen of bodily conduits. The constricted and expanded diameters of the stents typically fall in the ranges of 1.0-3.5 mm and 3.5-10.0 mm, respectively.

The stents are preferably fabricated from low memory, more plastic than elastic, bio-compatible materials, for example, stainless steel 316L, gold, tantalum, etc. which enables them to be plastically deformed from their constricted diameters to their expanded diameters.

A typical stent for implantation in a human coronary artery is 9-21 mm long comprising three to seven 2.2 mm long stent segments connected by two to six 1 mm long connectors such that the ends of the stent subtend between a 45° to 135° angle at a radius of curvature of approximately 9 mm when flexed.

## BRIEF DESCRIPTION OF THE DRAWINGS

The invention is herein described, by way of example only, with reference to the accompanying drawings, wherein:

FIG. 1 shows a close-up view of a prior art articulated stent of deployed in a curved blood vessel;

FIGS. 2a and 2b show a preferred embodiment of an articulated stent, constructed and operative according to the teachings of the present invention, in its relaxed and flexed states before plastic deformation;

FIG. 2c shows the expanded stent of FIG. 2 after plastic deformation;

FIG. 2d shows the stent of FIG. 2 mounted on a catheter in its flexed state;

5,449,373

3

FIGS. 2e and 2f show the stent of FIG. 2 before and after expansion by a balloon forming part of its catheter delivery system;

FIGS. 3a and 3b show a second embodiment of an articulated stent, constructed and operative according to the teachings of the present invention, in its relaxed and flexed states before plastic deformation; and

FIG. 3c shows the expanded stent of FIG. 3 after plastic deformation.

#### DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention is of an articulated stent for delivering through a curved bodily conduit, for example, a peripheral or coronary artery of a living animal or a human and implantation therein as part of a balloon angioplasty procedure to maintain patency.

The principles and operation of the articulated stent of the present invention may be better understood with reference to the drawings and the accompanying description.

Referring now to the drawings, FIGS. 2a-2c show an articulated stent, generally designated 100, constructed and operative according to the teachings of the present invention, generally comprising a number of substantially rigid segments 102 connected by connectors 110.

Segments 102 are preferably made up to present a fine diamond mesh of interconnected diamond shaped cells 108 having 1 mm sides on expansion as best seen in FIG. 2c. Depending on the intended diameter of stent 100, segments 102 typically comprise between 8-24 diamond shaped cells 108.

Connectors 110 comprise links 112 connecting a front end 104 to a tail end 106 of adjacent segments 102. Links 112 preferably extend in a substantially helical fashion between apexes of diamond shaped cells 108 at front and rear ends 104 and 106 of adjacent segments 102 such that the number of links 112 equals the number of cells 108. Links 112 are preferably evenly deployed around perimeters of segments 102 such that connectors 110 can be equally flexed in any direction and to provide continuous and uniform support to both straight and curved portions of a bodily conduit.

Alternate connectors 110 at front and rear ends 104 and 106, respectively, of a segment 102 preferably have links 112 wound in clockwise and counter clockwise directions. Alternately winding connectors 110 ensures that the rotational displacement of links 112 and adjacent segments 102 relative to the walls of a blood vessel and more importantly the balloon of its delivery system is minimized when stent 100 is expanded.

It is particular feature of the present invention that connectors 110 have a generally cylindrical configuration when stent 100 is relaxed as best seen in FIG. 2a and a differentially stretched and compressed curved configuration when stent 100 is flexed as best seen in FIG. 2b. The flexed configuration is brought about by two relatively opposing displacements of links 112. First, the differential stretching of connectors 110 occurs at the convex portion thereof denoted 114 by links 112 being displaced away from one another. Second, the differential compressing of connectors 110 occurs at the concave portion thereof denoted 116 by links 112 being displaced towards one another.

Stent 100 has a constricted diameter for delivery through a curved bodily conduit as shown in FIGS. 2a and 2b and an expanded diameter as shown in FIG. 2c for supporting a bodily conduit. Stent 100 is preferably

4

fabricated from low memory, more plastic than elastic, bio-compatible material, for example, stainless steel 316L, gold, tantalum, etc. which enables it to be plastically deformed from its constricted diameter to its expanded diameter. The constricted and expanded diameters of stent 100 typically fall in the ranges of 1.0-3.5 mm and 3.5-10.0 mm, respectively.

With reference now to FIGS. 2d-2f, stent 100 is shown overlying a balloon 118 forming part of its catheter delivery system 120. Stent 100 is mounted on its catheter delivery system 120 in its constricted diameter state shown in FIG. 2e for plastic deformation through inflation of balloon 118 to its expanded diameter shown in FIG. 2f for supporting the walls of a bodily conduit. An exemplary stent for implantation in a human coronary artery, is typically 15 mm long made up of five 2.2 mm long segments 102 connected by four 1 mm long connectors 110 and capable of flexion such that its ends subtend a 90° angle at a radius of curvature of approximately 9 mm.

The delivery of articulated stent 100 is considerably simpler than the delivery of prior art articulated stent 10 because stent 100 is equally flexible in all direction and therefore does not require a dedicated angular orientation to pass a particular curved portion. This advantage is particularly important for delivery through blood vessels having multiple curved portions. It is a further advantage of stent 100 over prior art stents 10, that stent 100 provides continuous and uniform support along the entire length of a blood vessel by means of segments 102 and unflexed connectors 110 supporting straight portions thereof while connector portions 114 and 116 supporting convex and concave curved portions thereof, respectively.

With reference now to FIGS. 3a and 3b, an articulated stent 122 is shown in which connectors 124 comprise links 126 having one or more kinks 128. The design of connectors 124 is preferred to that of connector 110 because stent 100 may have a tendency to rupture balloon 118 due to two reasons. First, links 112 overlying the convex portion of balloon 118 have a tendency to be biased inward when stent 100 is flexed. Second, segments 102 display a rotational displacement relative to balloon 118 when stent 100 is expanded.

In this case, the differentially stretched and compressed curved configuration of connector 124 is brought about by two relatively opposing displacements of links 112 as before except that the differential stretching of connectors 124 at convex portion 114 occurs by kinks 128 being somewhat straightened out while the differential compressing of connectors 124 at concave portion 116 occurs by kinks 128 being more acutely bent.

In a similar fashion to stent 100, stent 122 has a constricted diameter for delivery through a curved bodily conduit as shown in FIGS. 3a and 3b and an expanded diameter as shown in FIG. 3c for supporting a bodily conduit when implanted therein.

While the invention has been described with respect to a limited number of embodiments, it will be appreciated that many variations, modifications and other applications of the invention may be made.

What is claimed is:

1. An articulated stent, comprising:

(a) at least two substantially rigid segments having a plurality of connected cells each having apices, wherein, upon expansion, each of said rigid seg-

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ments presents a substantially cylindrical diamond mesh; and  
(b) a flexible connector, comprising a plurality of flexible links  
wherein each of said flexible links connects apices  
of adjacent cells on adjacent rigid segments;  
each of said flexible links includes a plurality of  
portion with each pair of neighboring portions  
having an area of inflection therebetween, and  
during expansion of said stent, said area of inflection remains inflected.

6

2. The stent as in claim 1, wherein said plurality of links includes between 8-24 links.  
3. The stent as in claim 1 made from bio-compatible material capable of a more plastic than elastic deformation.  
4. The stent as in claim 3, wherein said material is stainless steel.  
5. The stent as in claim 3, wherein said material is gold.  
6. The stent as in claim 3, wherein said material is tantalum.

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